Forgestone Capital Management LP

TRANSPORTATION IMPACT STUDY

Proposed Mixed-Use Development
170 Northfield Drive West,
City of Waterloo

April 2024
24063

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April 4th, 2024

Reference Number: 24063

Sheldon DiCarmine Dobsi
Director, Investments
Forgestone Campital Management LP
130 King Street West, Suite 2350
Toronto, ON M5X 2A2

Dear Sheldon DiCarmine Dobsi,

RE: Transportation Impact Study
Proposed Mixed-Use Development
170 Northfield Drive West, City of Waterloo

LEA Consulting Ltd. (LEA) is pleased to present the findings of our Transportation Impact Study for the proposed mixed-use development located at 170 Northfield Drive West in the City of Waterloo. This report concludes that the proposed development is expected to have an acceptable impact on the road network operations in the surrounding area.

Should you have any questions regarding this Transportation Impact Study, please do not hesitate to contact the undersigned.

Yours truly,
LEA CONSULTING LTD.



Christopher Sidlar, M.Sc.Pl., MCIP, RPP
Vice President, Transportation

Jocelyn Wallen, P.Eng.
Project Manager, Transportation Engineer

Encl. Transportation Impact Study – 170 Northfield Drive West, Proposed Mixed-Use Development, City of Waterloo (April 2024)

Disclaimer

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1 INTRODUCTION

LEA Consulting Ltd. (LEA) was retained by Forgestone Capital Management LP to undertake a Transportation Impact Study (TIS) for the proposed mixed-use development located at 170 Northfield Drive West in the City of Waterloo (hereinafter referred to as the "subject site"). The following TIS has been prepared in support of the concurrent Official Plan Amendment (OPA)/Zoning By-law Amendment (ZBA) applications for the proposed development. The subject site is currently occupied by two (2) commercial/office buildings and at-grade parking lots. The subject location is illustrated below in Figure 1-1.

Figure 1-1: Subject Site Location



Source: Google Maps, February 2024

The purpose of this study is to assess the proposed development from a transportation perspective, determine the traffic impacts on the adjacent road network, and identify any required mitigation measures. The following study will analyse the horizon years of 2031 and 2041, in line with the Waterloo Transportation Master Plan horizons. In addition, this study includes a review of the parking and loading provisions and a Transportation Demand Management (TDM) Plan to encourage alternative modes of

travel. The study will be conducted following the Region of Waterloo *Transportation Impact Study Guidelines (September 2014).*

1.1 DEVELOPMENT PROPOSAL

According to the Region of Waterloo Official Plan, developments located within a 600 to 800 metre radius of a rapid transit station are considered Major Transit Station Areas (MTSAs). MTSAs are planned and developed to achieve increased densities that support and ensure the viability of existing and planned rapid transit service levels and include a mix of residential, office, institutional and commercial development.

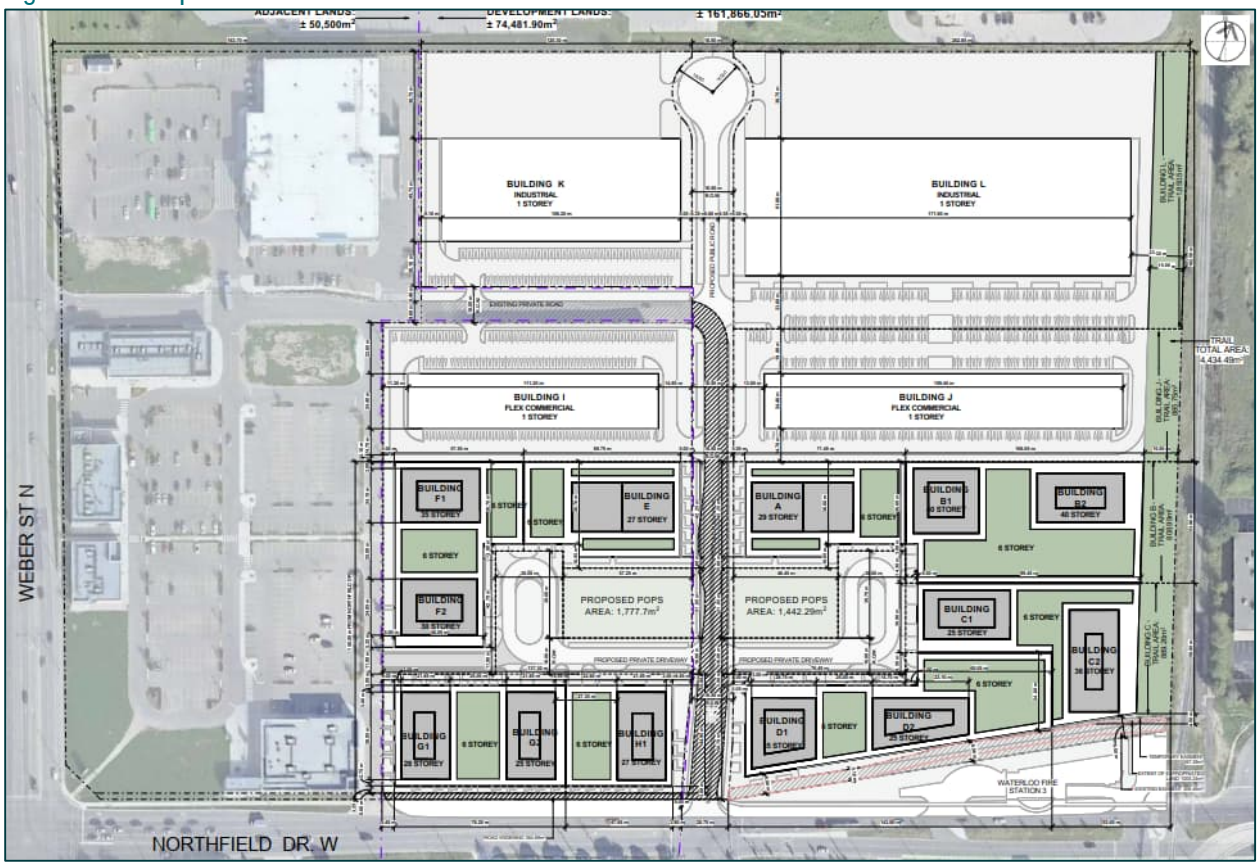
Based on the latest site plan, the development proposal consists of a total of 4,267 residential units and approximately 22,280 m^2 of non-residential GFA. A total of 5,139 vehicle parking spaces are proposed. Access to the development is proposed via Northfield Drive West and via Weber Street North.

The unit breakdown and preliminary site statistics are provided in Table 1-1, with the most recent site plan illustrated in Figure 1-2.

Table 1-1: Site Statistics

Land Use		Size
Residential	Studio	307 Units
	1 Bedroom	2,068 units
	2 Bedroom	1,432 Units
	3 Bedroom	460 Units
	Total	**4,267 Units**
Retail		360.9 m^2
Flex Commercial		6,604.9 m^2
Industrial		15,315.9 m^2

Figure 1-2: Proposed Site Plan



Source: Turner Fleischer, March 2024

2 EXISTING TRANSPORTATION CONDITIONS

This section identifies and assesses the existing transportation conditions within the study area, including the road, transit, cycling and pedestrian networks. The study area was determined by assessing the size of the proposed development, its anticipated transportation impact, and through consultation with City of Waterloo, Region of Waterloo, and Ministry of Transportation (MTO) Staff (see Appendix A). In addition, LEA met with the City, Region and MTO on Wednesday November 8th, 2023 to confirm the TOR. The study area includes the following existing intersections:

- Weber Street North and Randall Drive (Signalized);
- Northfield Drive West and Weber Street North (Signalized);
- Weber Street North and Parkside Drive South (Signalized);
- Parkside Drive North and Northfield Drive West (Signalized);
- Northfield Drive West and LRT Intersection (Pedestrian Signalized);
- Weber Street North and Parkside Drive North (Unsignalized);
- Sobeys West Driveway/Plaza Northwest Driveway and Parkside Drive (Unsignalized);
- Sobeys East Driveway/North-South Access Road and Parkside Drive (Unsignalized);
- N-S Access Road and Northfield Drive West (Unsignalized);
- Kumpf Drive/Private Driveway and Northfield Drive West (Unsignalized);
- Conestoga Parkway Southbound Ramps and Northfield Drive West (Unsignalized) and
- Conestoga Parkway Northbound Ramps and Northfield Drive West (Unsignalized).

2.1 EXISTING ROAD NETWORK

The following section provides a description and classification of the roadways within the study area. All roadways within the study area are under the jurisdiction of the Region of Waterloo or the City of Waterloo except for Conestoga Parkway, which is controlled by MTO.

Figure 2-1 illustrates the existing lane configuration for the study area road network.

Northfield Drive West is an east-west regional arterial roadway that operates with a four-lane cross-section (two lanes per direction) within the study area. Under the Region of Waterloo's jurisdiction, the roadway operates between Westmount Road North to King Street North where it continues as Northfield Drive East beyond the City of Waterloo into Woolwich Township. In the immediate vicinity of the subject site, the roadway operates with a posted speed limit of 60 km/h.

Weber Street North is a north-south regional arterial roadway that operates with a four-lane cross-section (two lanes per direction) within the study area. Under the Region of Waterloo's jurisdiction, the roadway operates between King Street North and Erb Street East where it continues as Weber Street South and eventually Weber Street East until Fairway Road North. The roadway operates with a posted speed limit of 60 km/h within the study area.

Parkside Drive is generally a north-south major collector roadway that operates with a two-lane cross-section (one lane per direction). North of Northfield Drive West, the road is a local roadway under private

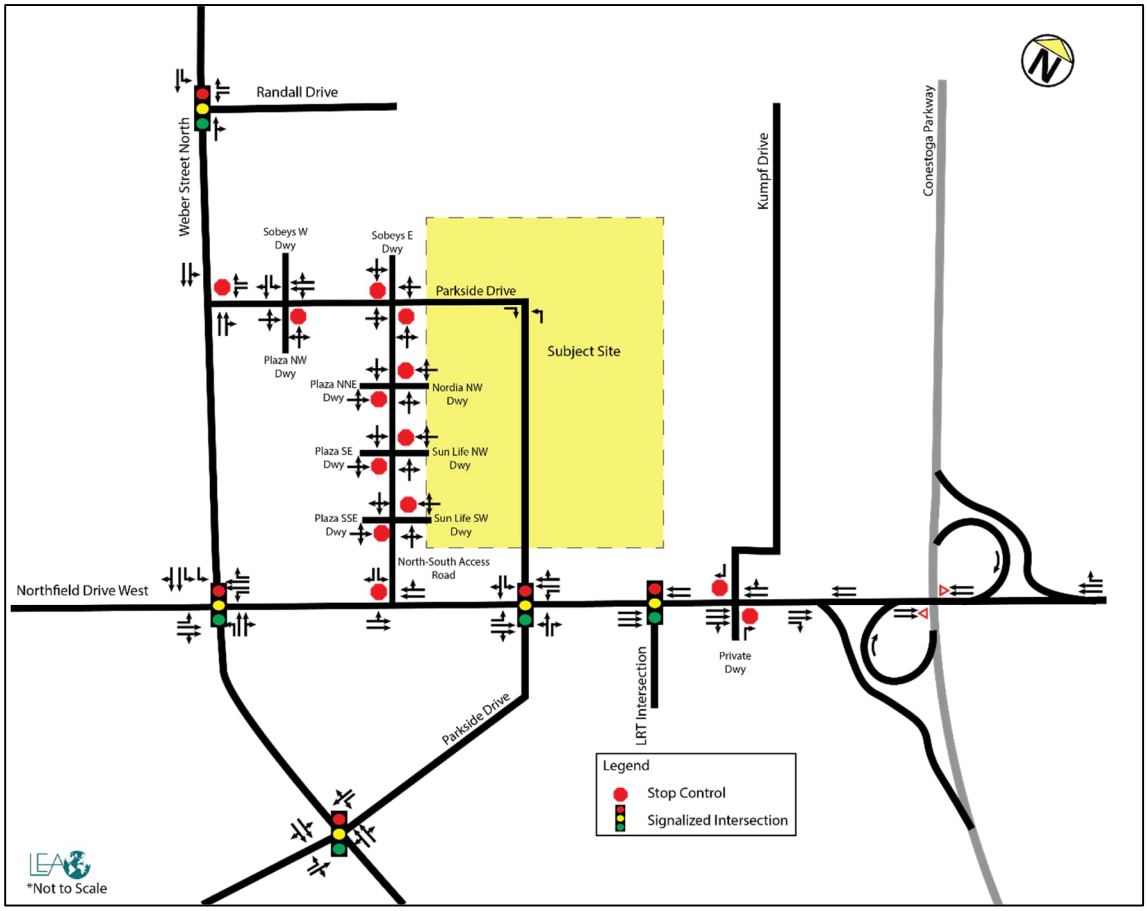
ownership. South of Northfield Drive West, the roadway operates as a major collector road under the jurisdiction of the City of Waterloo. The roadway extends from Northfield Drive West to Bearinger Road. North of Northfield Drive, Parkside Drive operates with a posted speed limit of 20 km/h. South of Northfield Drive, as there is no speed limit posted, Parkside Drive operates with an assumed speed limit of 50 km/h.

Randall Drive is an east-west local roadway that operates with a two-lane cross-section (one lane per direction). The roadway operates between Weber Street North and Kumpf Drive and is under the jurisdiction of the City of Waterloo. As there is no posted speed limit, the roadway operates with an assumed speed limit of 50 km/h within the study area.

Kumpf Drive is a north-south local roadway that operates with a two-lane cross-section (one lane per direction). The roadway operates between Northfield Drive West and terminates north of Randall Drive and is under the jurisdiction of the City of Waterloo. As there is no speed limit posted, the roadway operates with an assumed speed limit of 50 km/h within the study area.

Conestoga Parkway is classified as north-south highway. The route extends between the interchange with King Street North in Woolwich Township to Trussler Road in Kitchener where it continues as Highway 7/8, south of Ottawa Street. Currently, Conestoga Parkway has an interchange with Northfield Drive West in the area of the subject site. Conestoga Parkway is under the jurisdiction of the Ontario Ministry of Transportation.

Figure 2-1: Existing Lane Configuration

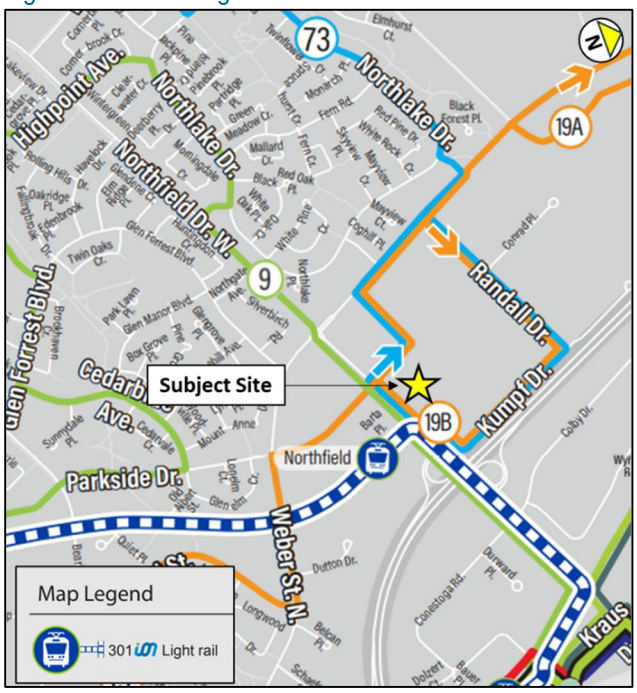


2.2 EXISTING TRANSIT NETWORK

The subject site is well served by existing transit services along Northfield Drive West and the surrounding road and transit network provided by Grand River Transit (GRT). Bus stops are located throughout the site along Parkside Drive and at the intersection of Northfield Drive West and Parkside Drive, which is immediately adjacent to the subject site. In addition, the site is within an MTSA for the Northfield LRT Station, which is located approximately 240 m (or a 3-minute walk) south of the subject site, providing a convenient connection to the overall transit network.

As a testament to the subject site's transit accessibility, the site receives a Transit Score of 54/100, or "Good Transit" when entered into the Walk Score application, indicating that there are many public transit opportunities in the nearby area. The existing transit network surrounding the subject site is described below and illustrated in Figure 2-2.

Figure 2-2: Existing Transit Network



Source: Grand River Transit, June 2023

GRT Route 301 – ION Light Rail is a light rail transit (LRT) route that operates generally in an east-west direction. The route operates from Conestoga Station to Fairway Station where connections to the 302 ION Bus are provided. This route operates with headways of approximately 15-minutes, operating Monday to Friday from approximately 5:30 AM to 9:00 PM and on weekends from approximately 7:00 AM to 9:00 PM.

> *Access Location:* ION LRT Route 301 is accessible at the Northfield Station, which is located approximately 240 m (or a 4-minute walk) from the subject site.

GRT Route 9 – Lakeshore is a bus route that operates generally in a north-south direction. The route operates from the University of Waterloo Station to Conestoga Station, where connections to the 301 ION Light Rail are provided. This bus route operates Monday to Friday all day, with headways of approximately

15-minutes during peak hours and 30-minutes throughout the day. On Saturday and Sunday, the route operates all-day with headways of 30-minutes.

> *Access Location:* Route 9 is accessible at the intersection of Northfield Drive West and Parkside Drive, which is located adjacent to the subject site (less than a 1-minute walk).

GRT Route 19 – Hazel is a bus route that operates during the summer months only. The route operates generally in a north-south direction. Two services are operated, providing service from the University of Waterloo to Northfield Station, where connections to the 301 ION Light Rail are provided. Route 19A provides service to St. Jacobs Market and Route 19B operates from the University of Waterloo Station to Northfield Station via Kumpf Drive. Monday to Friday, Route 19A operates all-day with headways of approximately 30-minutes and Route 19B operates during the morning and evening peak hours only, with headways of approximately 30-minutes. On weekends, both routes operate with headways of approximately 1-hour all-day.

> *Access Location:* Route 19 is accessible at the intersection of Northfield Drive West and Parkside Drive, which is located adjacent to the subject site (less than a 1-minute walk).

GRT Route 73 – Northlake is a bus route that operates generally in an east-west direction. The route operates from the area of Conservation Drive and Rideau River Street to Northfield Station, where connections to the 301 ION Light Rail are provided. This bus route operates Monday to Friday during peak hours only, with headways of approximately 30-minutes.

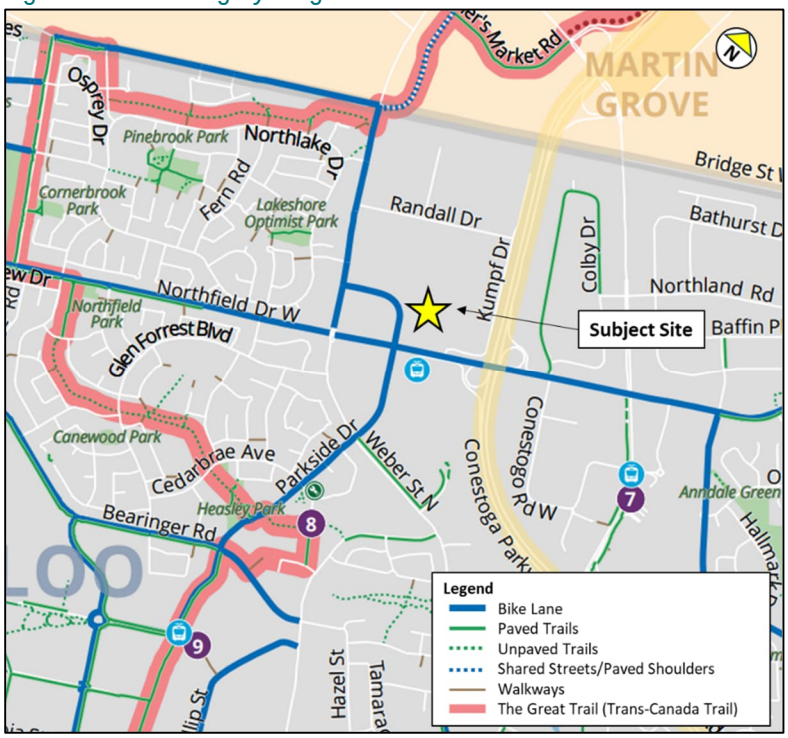
> *Access Location:* Route 73 is accessible at the Northfield Station, which is located approximately 240m (or a 4-minute walk) from the subject site.

2.3 EXISTING CYCLING NETWORK

Cycling facilities are available within the study area with bike lanes present along both sides of Northfield Drive West, Parkside Drive and Weber Street North. These bike lanes provide east-west and north-south connections to the Great Trail (Trans-Canada Trail) which features both paved and unpaved sections. Both the Laurel Trail and the Farmers Market Trail are accessible in the area.

As a testament to how bikeable the subject site is, the subject site receives a Bike Score of 64/100, or “Bikeable”, when entered into the WalkScore application. This indicates that there is some cycling infrastructure in the surrounding area. The existing bicycle and trail network surrounding the subject site is illustrated in Figure 2-3.

Figure 2-3: Existing Cycling Network



Source: Region of Waterloo Bike Map – Urban, 2021

2.4 EXISTING PEDESTRIAN NETWORK

In the area immediately surrounding the subject site, continuous sidewalks are available along both sides of all streets in the study area. In addition, crosswalks are available at all signalized intersections, inclusive of the intersection of Northfield Drive and the LRT interchange.

The walkability today is somewhat limited by the current land use and urban structure of the surrounding area, which is predominantly industrial and commercial uses that are auto-oriented. This is expected to improve through developments such as the subject development, which leverages existing higher-order transit by way of the ION LRT and cycling infrastructure available and will add mixed-use development that includes residential, retail, and flexible commercial space to the area.

2.5 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data in the intersection capacity analysis. Traffic counts were collected by the Region of Waterloo, MTO West and LEA Consulting. The data ranges from June 2022 to November 2023 between 7:00 AM – 10:00 AM and 4:00 PM – 7:00 PM.

It is noted that watermain construction resulted in the closure of Weber Street North and Northfield Drive West. As a result, no traffic counts were able to be collected for minor driveways along Parkside Drive and Northfield Drive West where historical counts were unavailable for purchase. As a result, trip generation was forecasted for the existing offices located on the subject site as well as the existing plaza on the northeast corner of Northfield Drive West and Weber Street North.

Signal timing plans at the signalized intersections were obtained from the Region of Waterloo. A summary of the TMC data collected is outlined in Table 2-1 with detailed traffic counts and signal timing plans available in Appendix B.

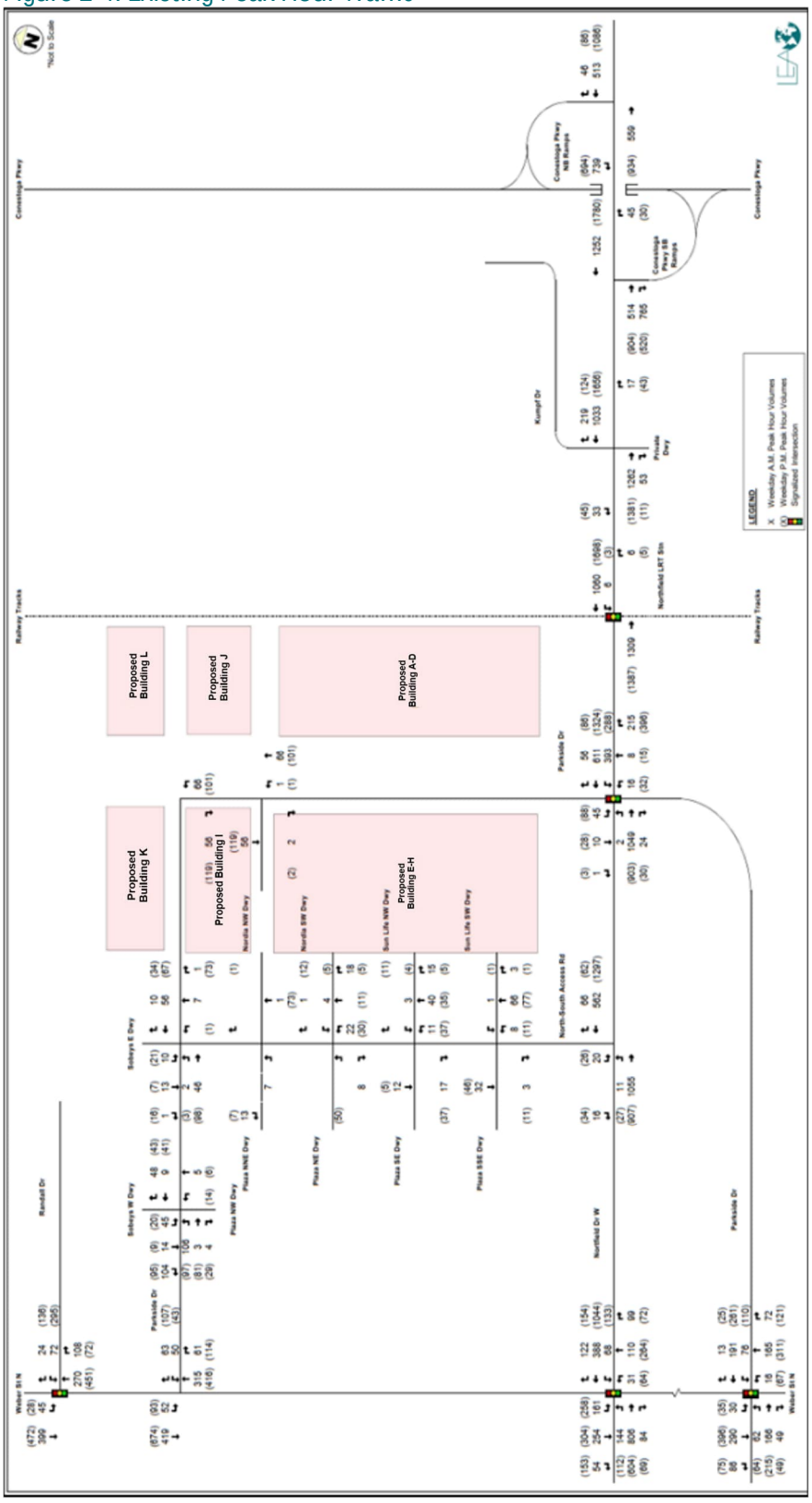
Table 2-1: Data Collection Summary

Intersection	TMC Date	Source
Weber St N & Randall Dr	Tues. November 25, 2022	Region of Waterloo
Weber St N & Northfield Dr W	Wed. June 8, 2022	
Weber St N & Parkside Dr (South intersection)	Thurs. December 8, 2022	
Parkside Dr & Northfield Dr W	Tues. October 25, 2022	
Conestoga Pkwy West Ramps	Tues. Sept 27, 2022	MTO West
Conestoga Pkwy East Ramps		

2.6 EXISTING TRAFFIC VOLUMES

As there are existing uses on site, the trips generated for the subject site and adjacent plaza were estimated using the ITE 11 Land Use Code (LUC) 130 Industrial Park. Site trips were assigned using trip distribution as calculated from 2016 TTS data. In addition, during the collection of traffic counts, construction was present at the intersection of Weber Street North and Northfield Drive West. As such, volumes were balanced based on the counts at Parkside Drive and Northfield Drive West. The existing balanced traffic volumes during the weekday AM and PM peak hour are illustrated in Figure 2-4.

Figure 2-4: Existing Peak Hour Traffic



3 FUTURE BACKGROUND TRANSPORTATION CONDITIONS

For the analysis of future background traffic conditions, the study consists of an eight (8)-year horizon from the existing year 2023 to the future year 2031 and an 18-year horizon to the future year 2041, in line with the horizon years for the Waterloo Transportation Master Plan horizons. Future background conditions include traffic added to the network from other future developments, corridor growth and considers overall improvements to the transportation network. The future background conditions will be used as the baseline for evaluating the impact of the proposed development.

3.1 BACKGROUND DEVELOPMENTS

LEA met with the City, Region and MTO on Wednesday November 8th, 2023 to confirm the TOR. One (1) background development was included in the future background analysis as per the Region of Waterloo's Development Application portal. The background developments are summarized in Table 3-1. Excerpts from the study providing details of the background development's trips are provided in Appendix C.

Table 3-1: Background Developments

Location	Proposed Development	Source of Traffic Volumes
562-565 Conestogo Rd	432 Mid-rise units 2,102 High-rise units 21,400 sf GFA Commercial 196,100 sf Office	Paradigm March 28, 2023

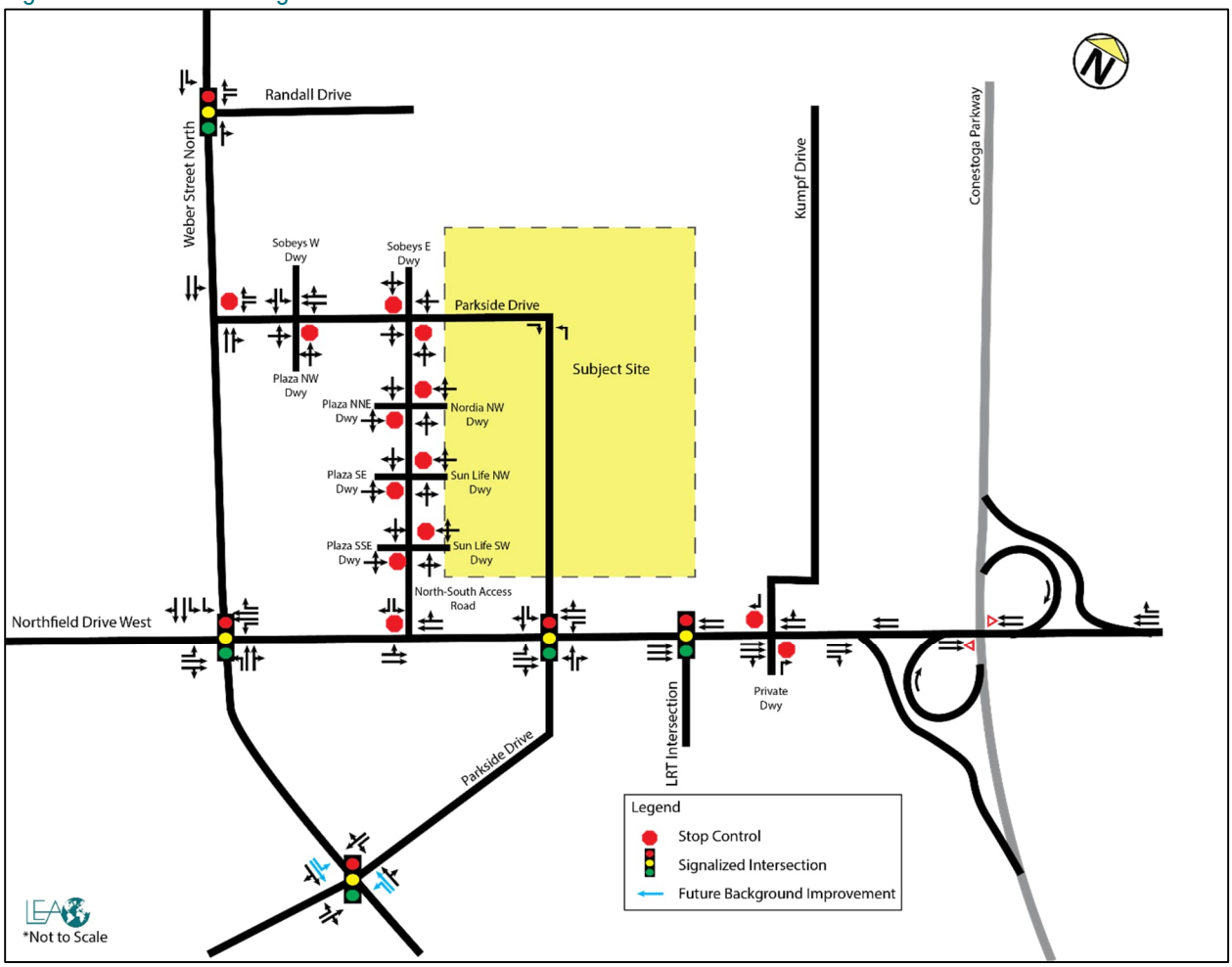
3.2 CORRIDOR GROWTH

No corridor growth was applied to the future background traffic volumes, as provided by the Region of Waterloo. In addition, AADT data was reviewed from Highway 85 and Northfield Drive Interchange. The data revealed a 1% growth rate, which was subsequently added to the MTO ramp intersections.

3.3 FUTURE ROAD NETWORK IMPROVEMENTS

As part of the new Region Market Trail, Parkside Drive will be transformed to include a multi-use path from Northfield Drive to Bearinger Road. As part of the Stage 2 Construction, road network changes have been proposed along Parkside Drive. For the purposes of this TIS, the modifications to Parkside Drive have been assumed to be completed by the 2031 horizon year. The future road network and lane configuration is illustrated in Figure 3-1.

Figure 3-1: Future Background Road Network



3.4 FUTURE BACKGROUND TRAFFIC VOLUMES

The future background traffic volumes for the weekday AM and PM peak hours under the 2031 and 2041 horizon years are illustrated in Figure 3-2 and Figure 3-3, respectively.

Figure 3-2: 2031 Future Background Peak Hour Traffic Volumes

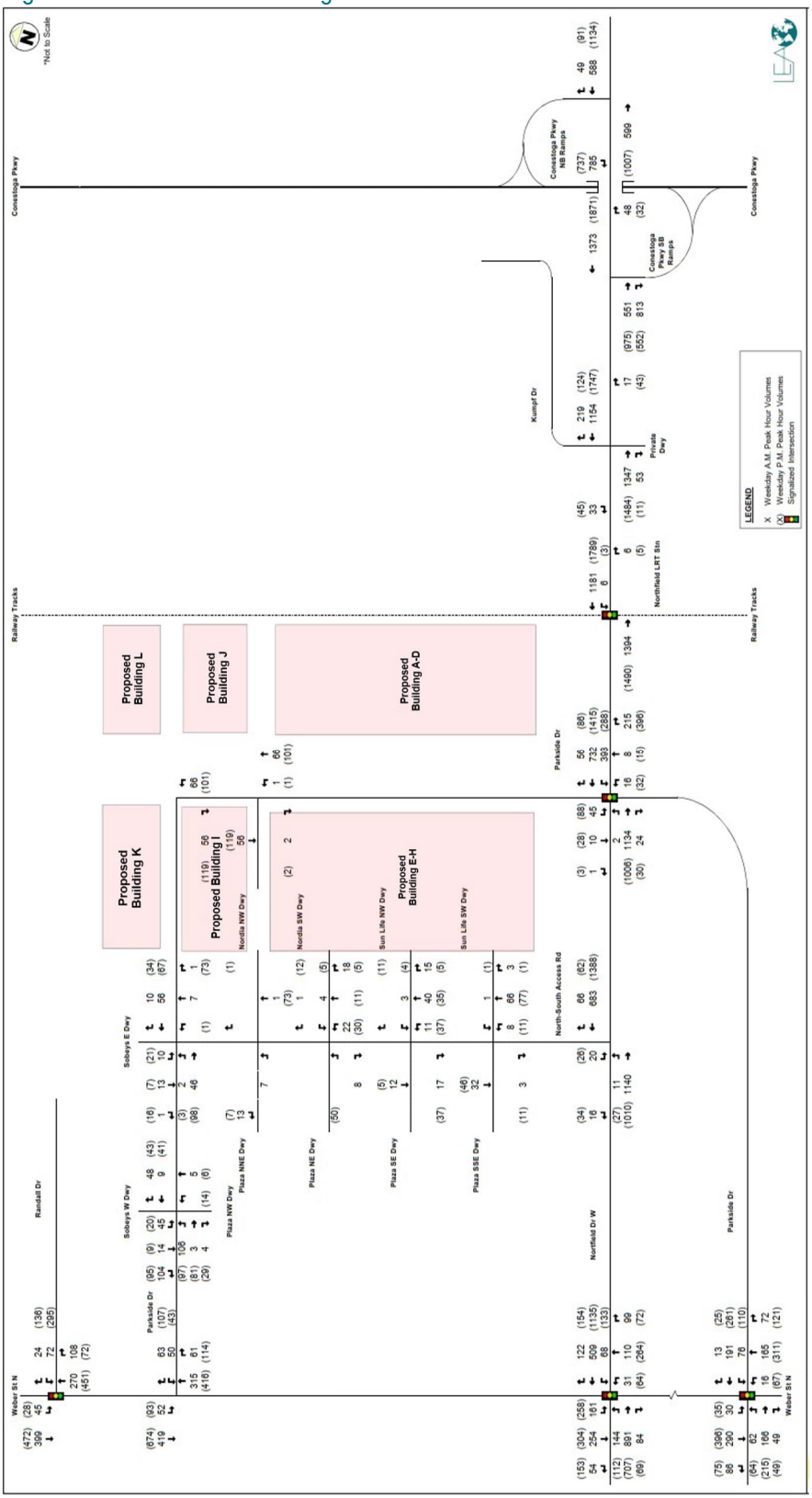
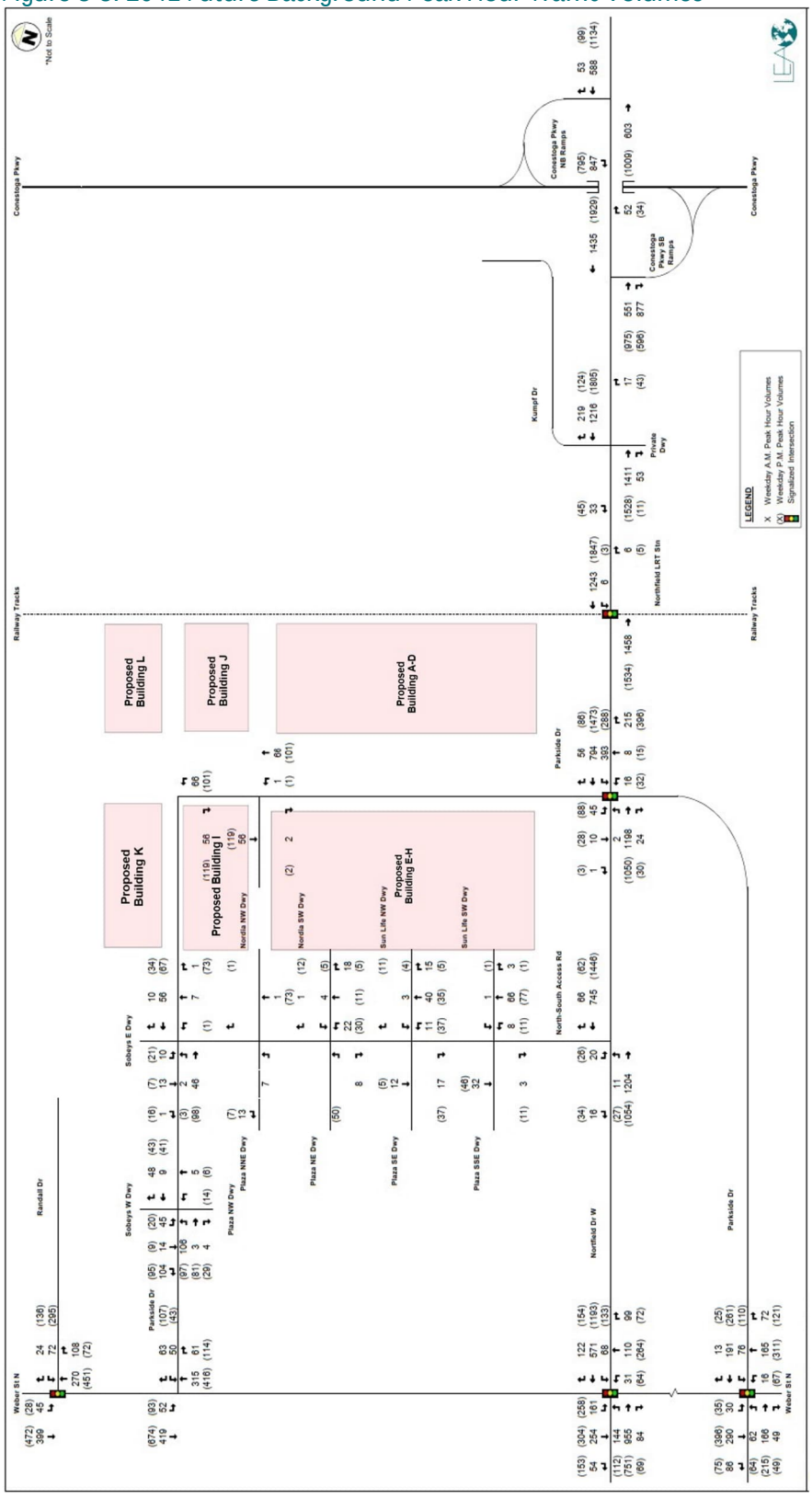


Figure 3-3: 2041 Future Background Peak Hour Traffic Volumes



4 SITE-GENERATED TRAFFIC VOLUMES

The proposed development consists of 12 buildings with a total of 4,267 residential units and approximately 22,280 m^2 of non-residential GFA. A total of 5,139 vehicle parking spaces are proposed. Access to the development is proposed via Northfield Drive West and via Weber Street North. The sections below discuss the calculation, distribution, and assignment of site-generated vehicle trips.

4.1 MODAL SPLIT

Data was provided by the Region of Waterloo for the future modal split of trips from the study area. Of note, to be conservative, the Auto Driver modal split was rounded up. The modal split is summarized in Table 4-1.

Table 4-1: Mode Splits

Mode	Split
Auto Driver	34%
Transit	33%
Walk/Cycle	33%
Total	**100%**

4.2 TRIP GENERATION

Trip generation for the proposed development was estimated using trip rates from the ITE Trip Generation Manual 11th Edition. The trip rates from ITE LUC 222 (Multifamily Housing – High Rise: close to rail, general urban/suburban) were used for the residential trips. The trip rates for ITE LUC 822 (Strip Retail Plaza: general urban/suburban, average rate) were used for the commercial uses in Building I, trip rates for ITE LUC 821 (Shopping Plaza (40-150k): general urban/suburban, average rate) were used for the commercial uses in Building J and trip rates for ITE LUC 130 (Industrial Park: general urban/suburban, average rate) were used for the industrial uses in Building K and L.

A summary of the trip generation for Building A to J is provided in Table 4-2.

Table 4-2: Trip Generation – Building A to J

Land Use	Criteria	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
		In	Out	Total	In	Out	Total
Buildings A-D							
Residential (LUC 222 – High Rise Residential) 2,503 Units	Trips/1000 ft^2	0.05	0.18	0.23	0.16	0.10	0.26
	ITE Total Trips	127	449	576	403	248	651
	Interaction Trips	-2	-6	-8	-21	-17	-38
	Total External Trips	125	443	568	382	231	613
	Gross Trips	**125**	**443**	**568**	**382**	**231**	**613**
Buildings E-H							
Residential (LUC 222 – High Rise Residential) 1,764 Units	Trips/1000 ft2	0.05	0.18	0.23	0.16	0.10	0.26
	ITE Total Trips	89	317	406	284	175	459
	Interaction Trips	-2	-4	-6	-14	-15	-29
	Total External Trips	87	313	400	270	208	478
	Gross Trips	**87**	**313**	**400**	**270**	**208**	**478**
Building I							

Land Use	Criteria	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
		In	Out	Total	In	Out	Total
Strip Retail Plaza (ITE11 Code 822) 30,000 ft²	Trips/1000 ft2	1.42	0.94	2.36	3.30	3.30	6.59
	ITE Total Trips	42	29	71	99	99	198
	Person Trips	52	35	87	126	123	249
	Interaction Trips	-18	-6	-24	-23	-34	-57
	Total External Person Trips	34	29	63	103	89	192
	Non-Auto Modal Split Reduction	92	-19	-41	-68	-59	-127
	Total External Auto Trips	12	10	22	35	30	65
	Pass by Trips (0% AM, 34% PM)	0	0	0	12	10	22
	Primary Trips	**12**	**10**	**22**	**23**	**20**	**43**
Building J							
Shopping Plaza Retail (ITE11 Code 821) 42,000 ft²	Trips/1000 ft2	1.07	0.66	1.73	2.54	2.65	5.19
	ITE Total Trips	45	28	73	107	111	218
	Person Trips	55	34	89	136	138	274
	Interaction Trips	-4	-10	-14	-21	-13	-34
	Total External Person Trips	51	24	75	115	125	240
	Non-Auto Modal Split Reduction	-34	-16	-50	-76	-83	-159
	Total External Auto Trips	17	8	25	39	42	81
	Pass by Trips (0% AM, 34% PM)	0	0	0	13	14	27
	Primary Trips	**17**	**8**	**25**	**26**	**28**	**54**
Total	Buildings A-D	125	443	568	382	231	613
	Buildings E-H	87	313	400	270	208	478
	Building I	12	10	22	35	30	65
	Building J	17	8	25	39	42	81
	Total Building A to J	**241**	**774**	**1015**	**726**	**511**	**1237**

Buildings A to J are expected to generate a total of 1,015 two-way trips (241 inbound, 774 outbound) during the AM peak hour and 1,237 two-way trips (726 inbound, 511 outbound) during the PM peak hour.

The trip generation for Buildings K and L is provided in Table 4-3.

Table 4-3: Trip Generation - Buildings K & L

Land Use	Criteria	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
		In	Out	Total	In	Out	Total
Autos							
Industrial Park (ITE11 LUC130) (166,000 ft²)	Trips/1000 ft²	0.28	0.06	0.34	0.07	0.27	0.34
	ITE Total Trips	45	10	56	12	44	56
	Person Trips	46	10	56	12	44	56
	Non-Auto Modal Split Reduction	-30	-7	-37	-8	-29	-37
	External Auto Trips	**16**	**3**	**19**	**4**	**15**	**19**
Trucks							
Industrial Park (ITE11 LUC130) 166,000 ft²	Trips/1000 ft2	0.02	0.02	0.04	00.2	0.02	0.04
	ITE Total Trips	3	4	7	3	4	7
	External Truck Trips	**3**	**4**	**7**	**3**	**4**	**7**
	Total (Auto + Trucks)	**19**	**7**	**26**	**7**	**19**	**26**

Building K and L are expected to generate 19 two-way auto trips (16 inbound, 3 outbound) and 7 two-way truck trips (3 inbound, 4 outbound) during the AM peak hour and 19 two-way auto trips (4 inbound, 15 outbound) and 7 two-way truck trips (3 inbound, 4 outbound) during the PM Peak hour.

As the existing uses on-site will be replaced, the net auto trip generation was calculated, and is shown in Table 4-4

Table 4-4: Net Auto Trip Generation

Land Use	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
	In	Out	Total	In	Out	Total
Proposed						
Building A-D	125	443	568	382	231	613
Building E-H	87	313	400	270	208	478
Building I	12	10	22	35	30	65
Building J	17	8	25	39	42	81
Building K + L	19	7	26	7	19	26
Total Proposed	**260**	**781**	**1041**	**733**	**530**	**1263**
Existing						
Nordia Site Trips	19	6	25	6	19	25
Sun Life Site Trips	18	5	23	6	17	23
Total Existing Trips	**37**	**11**	**48**	**12**	**36**	**48**
Net New Auto Trips	**223**	**770**	**993**	**721**	**494**	**1215**

The proposed development is anticipated to generate an additional 993 two-way auto trips (223 inbound, 770 outbound) during the AM peak hour and 1,215 two-way auto trips (721 inbound, 494 outbound) during the PM peak hour.

4.2.1 Multi-Modal Trip Generation

The multi-modal trip generation is summarized in Table 4-5 and is based on the modal split identified in Section 4.1.

Table 4-5: Multi-Modal Trip Generation

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Subject Site	**External Person Trips**	**715**	**2278**	**2993**	**2137**	**1509**	**3646**
	Auto Driver + Passenger Trips	223	770	993	721	494	1215
	Transit Trips	246	754	1000	708	508	1216
	Pedestrian Trips	125	388	513	364	259	623
	Cycling trips	121	366	487	344	248	592

4.3 TRIP DISTRIBUTION AND ASSIGNMENT

The directional trip distribution of site traffic was derived using the Transportation Tomorrow Survey (TTS) 2016 data. The site traffic was assigned to the road network based on trip patterns in the study area, changes in the future road network, logical routing, and the location and configuration of the site accesses. Trip distribution for the residential, retail and employment uses are outlined in Table 4-6 to Table 4-8. Detailed TTS calculations are provided in Appendix D.

Table 4-6: Trip Distribution – Residential

Path	AM		PM	
	In	Out	In	Out
Weber St North	0%	6%	6%	0%
Weber St South	7%	9%	9%	7%
Northfield Dr West	19%	11%	11%	19%
Northfield Dr East	13%	13%	13%	13%
Conestoga Pkwy North	0%	0%	0%	0%
Conestoga Pkwy South	47%	46%	46%	47%
Parkside Dr South	14%	15%	15%	14%

Table 4-7: Trip Distribution – Retail

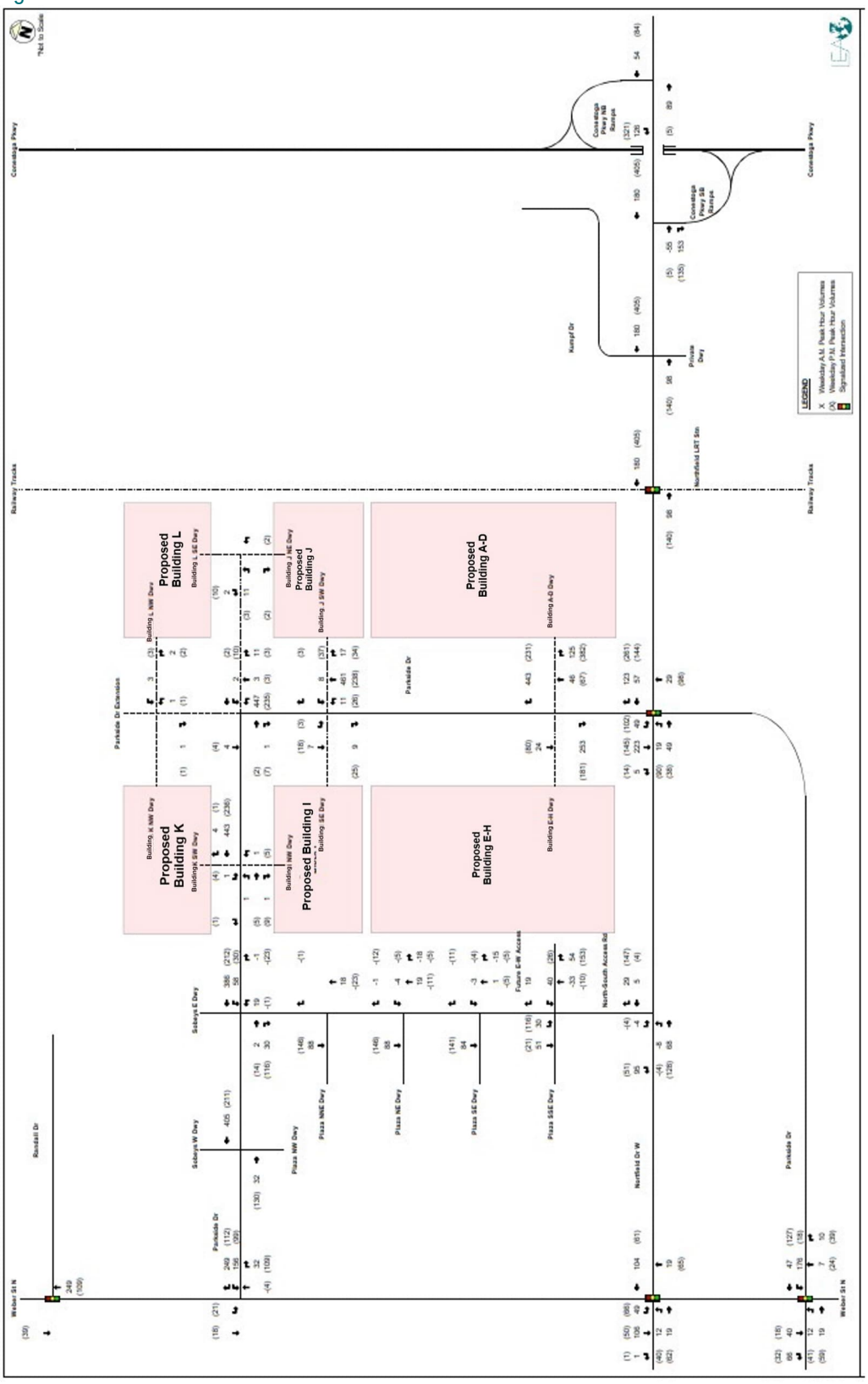
Path	AM		PM	
	In	Out	In	Out
Weber St North	0%	0%	0%	0%
Weber St South	2%	6%	6%	2%
Northfield Dr West	29%	24%	24%	29%
Northfield Dr East	11%	35%	35%	11%
Conestoga Pkwy North	0%	0%	0%	0%
Conestoga Pkwy South	55%	32%	32%	55%
Parkside Dr South	3%	3%	3%	3%

Table 4-8: Trip Distribution – Employment

Path	AM		PM	
	In	Out	In	Out
Weber St North	2%	0%	0%	2%
Weber St South	9%	17%	17%	9%
Northfield Dr West	27%	8%	8%	27%
Northfield Dr East	8%	17%	17%	8%
Conestoga Pkwy North	0%	0%	0%	0%
Conestoga Pkwy South	50%	45%	45%	50%
Parkside Dr South	4%	13%	13%	4%

The site generated traffic volumes for the weekday AM and PM peak hours is illustrated in Figure 4-1.

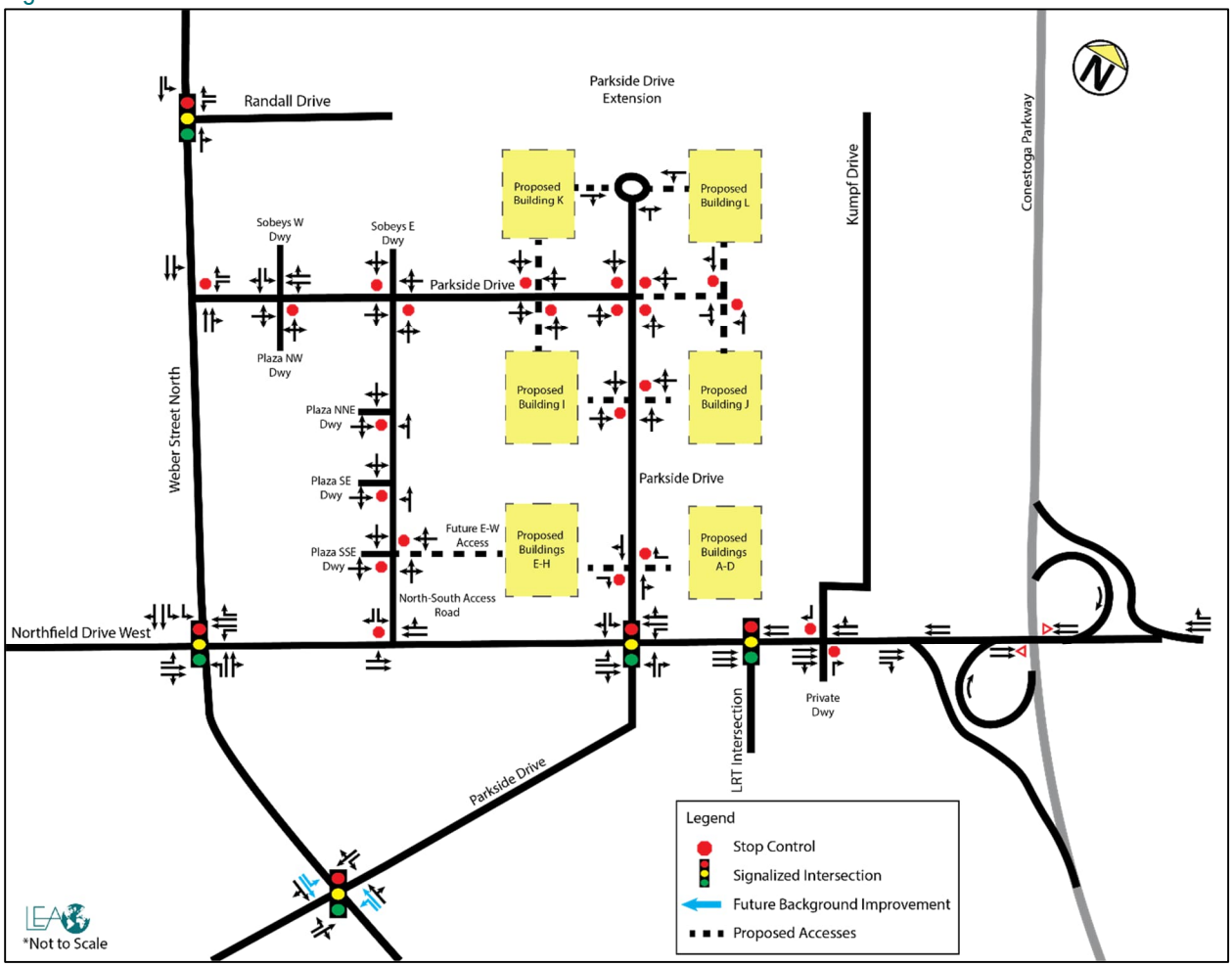
Figure 4-1: Site Generated Peak Hour Traffic Volumes



5 FUTURE TOTAL TRANSPORTATION CONDITIONS

Future total traffic conditions include the addition of site trips to the 2031 and 2041 future background volumes. Figure 5-1 illustrates the future road network with the development's site accesses.

Figure 5-1: Future Road Network



5.1 FUTURE TOTAL TRAFFIC VOLUMES

The future total traffic volumes for the weekday AM and PM peak hours during the 2031 and 2041 horizon years are illustrated in Figure 5-2 and Figure 5-3, respectively.

Figure 5-2: 2031 Future Total Traffic Volumes

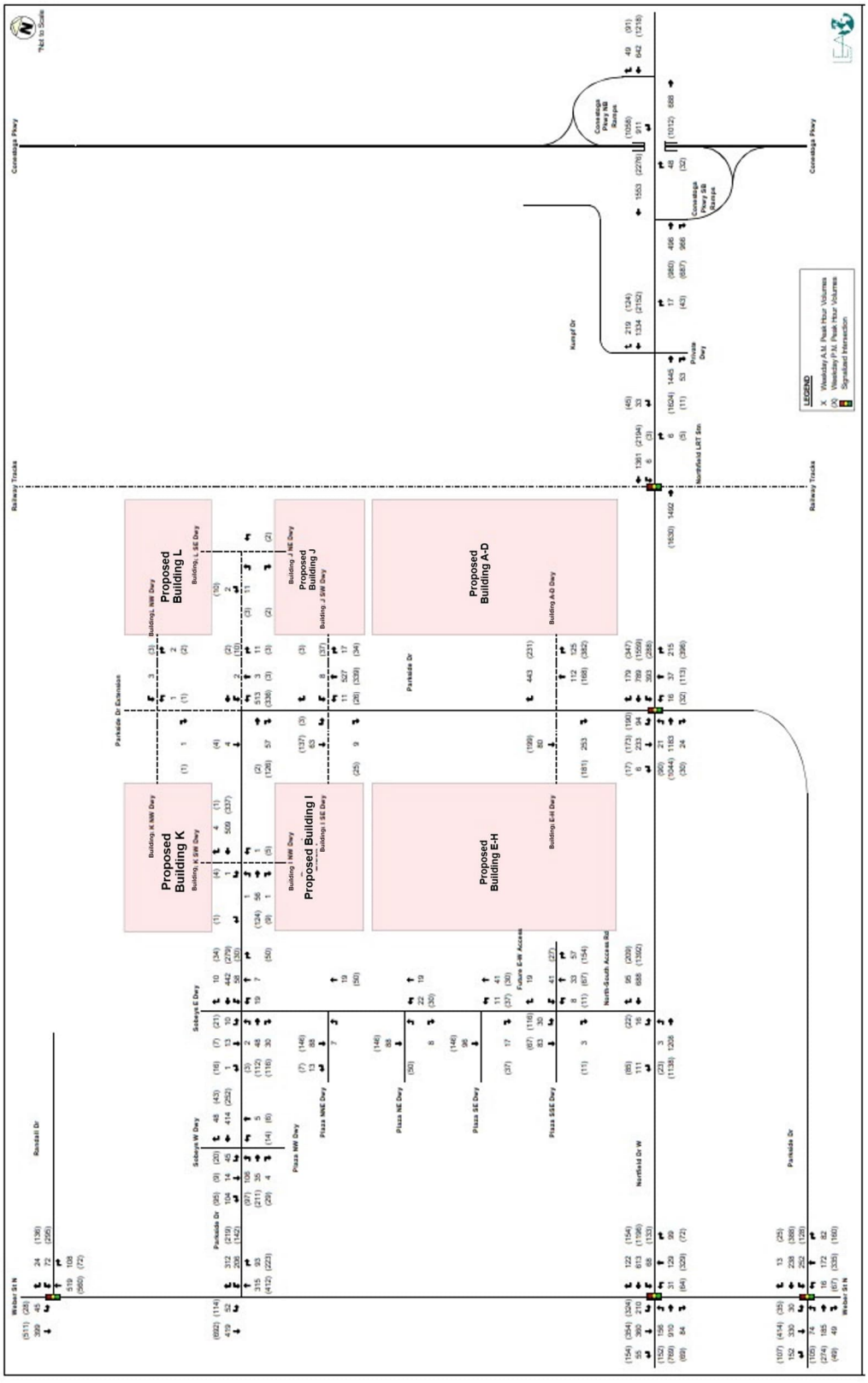
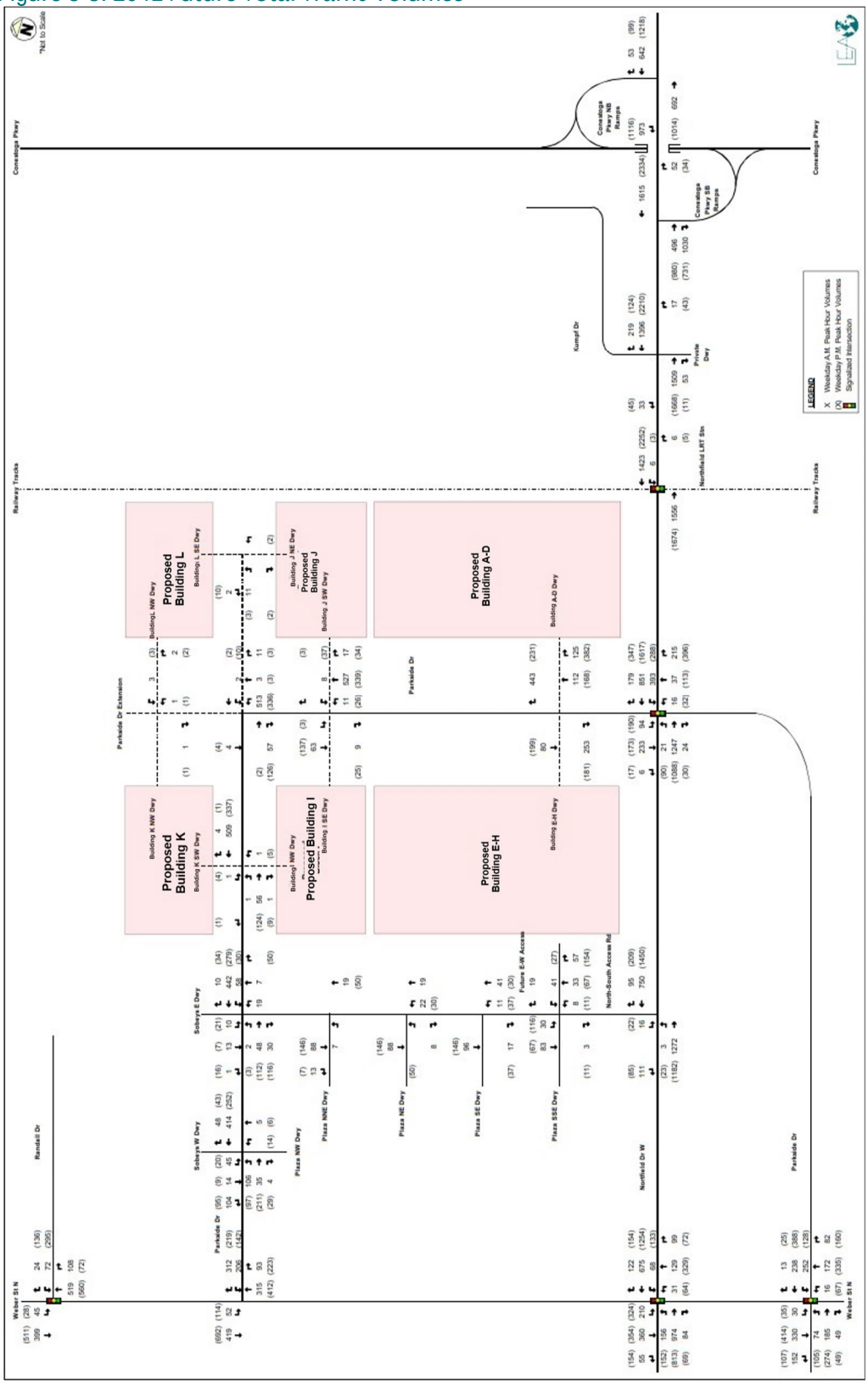


Figure 5-3: 2041 Future Total Traffic Volumes



6 INTERSECTION CAPACITY ANALYSIS

The intersection capacity analysis was undertaken using Synchro 11.0, which is based on the Highway Capacity Manual (2000) methodology and adheres to the Region of Waterloo Transportation Impact Study Guidelines (2018), the Region of Waterloo Transportation Impact Studies (TIS) Requirements for Capacity Analysis, Roundabouts, Signal Warrants (2013) and the Ministry of Transportation General Guidelines for the Preparation of Traffic Impact Studies (2023). As per the guidelines key movements of interest are those with a Level of Service (LOS) E or worse.

The sections below outline a comparison of the capacity analysis results under existing, future background and future total conditions. Detailed capacity analysis results are provided in the following appendices:

- Appendix E: Existing Intersection Capacity Analysis;
- Appendix F: 2031 & 2041 Future Background Intersection Capacity Analysis; and
- Appendix G: 2031 & 2041 Future Total Intersection Capacity Analysis.

6.1 SYNCHRO MODEL INPUTS AND ASSUMPTIONS

The following sub-sections outline the network assumptions and changes applied to the Synchro models in the existing, future background and future total scenarios. It is noted that queues reported within the capacity analysis were based on SimTraffic.

6.1.1 Road Network Assumptions

As noted in Section 3.3, the intersection of Parkside Drive (South) and Weber Street will be modified, which has been reflected in both the 2031 and 2041 future background and future total conditions. In addition, the proposed development will introduce several new access points, which have been reflected in the future total 2031 and 2041 horizon years. Signalization is recommended for the intersection of Weber Street North at Parkside Drive. The remaining road network is assumed to be the same.

6.1.2 Synchro Calibrations/Parameters

6.1.2.1 Existing Conditions Synchro Model Inputs

Existing traffic operations were assessed to provide a baseline for future traffic operations. The existing analysis incorporates the most recent signal timing plans. As per the Regional Guidelines for Capacity Analysis, the applied Peak Hour Factor (PHF) value of 1.00 was utilized as per the Regional Guidelines. The saturation flow rates were applied per the Regional TIS Guidelines. Lost time adjustments equal 4 for all movements and adjusted with clearance times.

6.1.2.2 Future Background and Future Total Synchro Model Inputs

Input parameters from the existing conditions were maintained with the corresponding future background and future total volumes.

6.1.3 Signal Timing Modifications

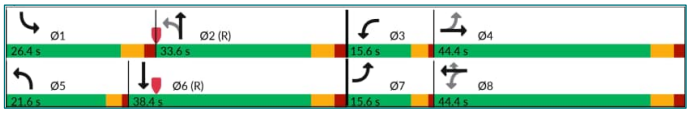
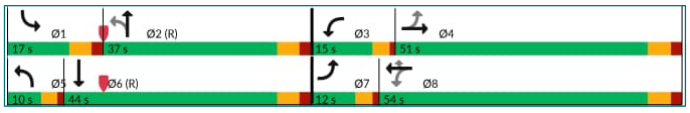
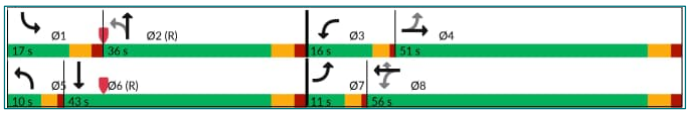
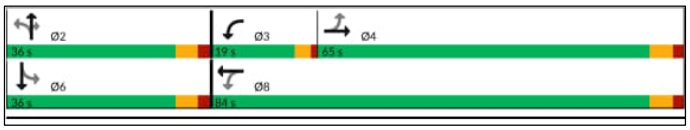
The cycle length at the Weber Street North and Northfield Drive West intersection is 120 seconds, whereas the Parkside Drive/Northfield Drive West intersection has a cycle length of 116 seconds. To facilitate some signal coordination along Northfield Drive West under future conditions, the cycle length

at the Parkside Drive and Northfield Drive West intersection was increased to 120 seconds during both peak hours. Two (2) different signal timing plans were optimized for future background conditions versus future total conditions to accommodate inbound development site traffic. The sections below summarize the signal timing modifications at each intersection.

6.1.3.1 Weber Street North and Northfield Drive Signal Timing Modifications

A summary of the recommended changes for the intersection of Weber Street North and Northfield Drive West under both future scenarios is provided in Table 6-1.

Table 6-1: Proposed Signal Timing Plan at Weber Street North and Northfield Drive West

Intersection	Peak	Timing Plan	Year	Cycle Length (s)	Splits
Weber St N & Northfield Dr W	PM	Original	2023	120	
		Proposed	2031	120	
			2041	120	
			2041	120	

A summary of the changes to the signal timing plan are provided in Table 6-2.

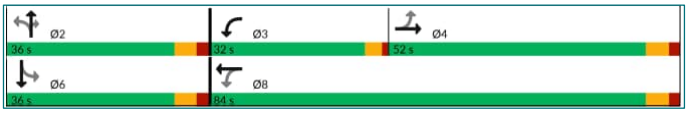
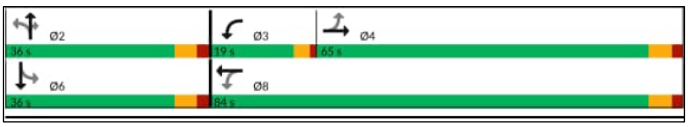
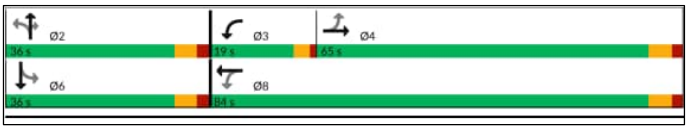
Table 6-2: Summary of Signal Timing Plan Change – Weber Street and Northfield Drive West

Timeframe	AM Peak Hour								PM Peak Hour							
	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR
Existing	15.6	44.4	15.6	44.4	21.6	33.6	26.4	38.4	15.6	44.4	15.6	44.4	21.6	33.6	26.4	38.4
2031 Future	16	49.2	12	44.4	10.8	36	22.8	48	12	51	15	54	10	37	17	44
Net change	***+0.4***	***+4.8***	***-3.6***	***+0***	***-10.8***	***+2.4***	***-3.6***	***+9.6***	***-3.6***	***+6.6***	***-0.6***	***+9.6***	***-11.6***	***+3.4***	***-9.4***	***+5.6***
2041 Future	0.4	4.8	-3.6	0	-10.8	2.4	-3.6	9.6	-4.6	6.6	0.4	11.6	-11.6	2.4	-9.4	4.6
Net change	***+0.4***	***+4.8***	***-3.6***	***+0***	***-10.8***	***+2.4***	***-3.6***	***+9.6***	***-4.6***	***+6.6***	***+0.4***	***+11.6***	***-11.6***	***+2.4***	***-9.4***	***+4.6***

6.1.3.2 *Parkside Drive and Northfield Drive West Signal Timing Modifications*

A summary of the recommended changes for the intersection of Parkside Drive and Northfield Drive West under future background conditions is provided in Table 6-3.

Table 6-3: Proposed Signal Timing Plan at Parkside Drive and Northfield Drive West – Future Background

Intersection	Peak	Timing Plan	Year	Cycle Length (s)	Splits
Parkside Dr & Northfield Dr W	AM	Original	2023	116	
		Proposed	2031	120	
			2041	120	
	PM	Original	2023	116	
		Proposed	2031	120	
			2041	120	

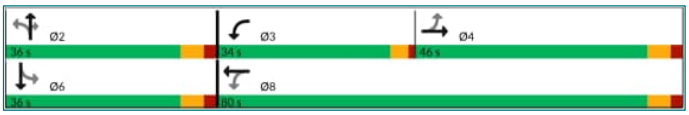
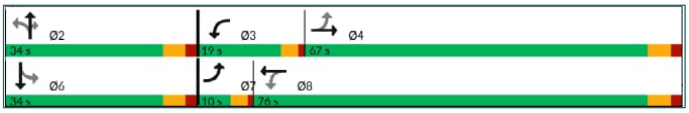
A summary of the changes to the signal timing plan are provided in Table 6-4.

Table 6-4: Summary of Signal Timing Plan Change – Parkside Drive and Northfield Drive West – Future Background

Timeframe	AM Peak Hour								PM Peak Hour							
	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR
Existing	0	46	34	80	0	36	0	36	0	46	34	80	0	36	0	36
2031 Future Background	0	52	32	84	0	36	0	36	0	65	19	84	0	36	0	36
Net change	**+0**	**+6**	**-2**	**+4**	**+0**	**+0**	**+0**	**+0**	**+0**	**+19**	**-15**	**+4**	**+0**	**+0**	**+0**	**+0**
2041 Future Background	0	57	29	86	0	34	0	34	0	67	19	86	0	34	0	34
Net change	**+0**	**+11**	**-5**	**+6**	**+0**	**-2**	**+0**	**-2**	**+0**	**+19**	**-15**	**+4**	**+0**	**+0**	**+0**	**+0**

A summary of the recommended changes for the intersection of Parkside Drive and Northfield Drive West under future total conditions is provided in Table 6-5.

Table 6-5: Proposed Signal Timing Plan at Parkside Drive and Northfield Drive West – Future Total

Intersection	Peak	Timing Plan	Year	Cycle Length (s)	Splits
Parkside Dr & Northfield Dr W	AM	Original	2023	116	
		Proposed	2041	120	
	PM	Original	2023	116	
		Proposed	2041	120	

A summary of the changes to the signal timing plan are provided in Table 6-4.

Table 6-6: Summary of Signal Timing Plan Change – Parkside Drive and Northfield Drive West – Future Total

Timeframe	AM Peak Hour								PM Peak Hour							
	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR
Existing	0	46	34	80	0	36	0	36	0	46	34	80	0	36	0	36
2031 Future Background	0	52	32	84	0	36	0	36	0	65	19	84	0	36	0	36
Net change (vs Ex)	**+0**	***+6***	***-2***	***+4***	**+0**	**+0**	**+0**	**+0**	**+10**	**+19**	***-15***	***-6***	**+0**	**+0**	**+0**	**+0**
2041 Future Total	0	57	29	86	0	34	0	34	10	67	19	76	0	34	0	34
Net change (vs Ex)	**+0**	**+11**	**-5**	**+6**	**+0**	**-2**	**+0**	**-2**	**+10**	**+21**	**-15**	**-4**	**+0**	**-2**	**+0**	**-2**

6.1.4 New Signalized Intersection – Weber Street North at Parkside Drive

A new signalized intersection is proposed at Weber Street North and Parkside Drive. A summary of the proposed signal timing plan is provided in Table 6-7 and Table 6-8.

Table 6-7: Proposed Signal Timing Plan at Weber Street North and Parkside Drive – Future Total

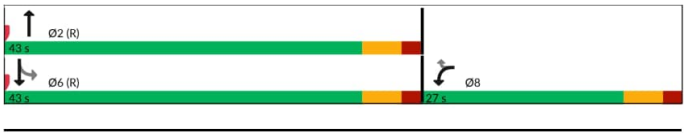
Intersection	Peak	Timing Plan	Year	Cycle Length (s)	Splits
Weber St N & Parkside Dr (N)	AM/PM	Proposed	2031 & 2041	70	

Table 6-8: Summary of Signal Timing Plan – Weber Street North and Parkside Drive – Future Total

Timeframe	AM Peak Hour								PM Peak Hour							
	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR	EBL	EBTR	WBL	WBTR	NBL	NBTR	SBL	SBTR
Future 2031 & 2041	0	0	0	27	0	43	0	43	0	0	0	27	0	43	0	43

6.2 2031 – SIGNALIZED INTERSECTIONS

The results for the studied signalized intersections under each traffic scenario for the 2031 horizon year during the weekday AM and PM peak hours are summarized in the sections below.

6.2.1 Weber Street North and Randall Drive

The intersection capacity analysis at Weber Street North and Randall Drive is summarized in Table 6-9 and the queue analysis is summarized in Table 6-10.

Table 6-9: Weber Street North & Randall Drive Capacity Analysis

Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Randall Dr	**Overall**	**-**	**0.34**	**8**	**A**	**-**	**0.34**	**8**	**A**	**-**	**0.50**	**8**	**A**
	WBL	72	0.41	33	C	72	0.40	33	C	72	0.40	33	C
	WBR	24	0.02	30	C	24	0.01	30	C	24	0.01	30	C
	NBTR	378	0.33	6	A	378	0.32	6	A	627	0.52	8	A
	SBL	45	0.07	3	A	45	0.07	3	A	45	0.09	4	A
	SBT	399	0.29	3	A	399	0.28	3	A	399	0.29	3	A
Mvmt		**Existing**				**Future Background 2031**				**Future Total 2031**			
		Vol	**V/C**	**Delay (s)**	**LOS**	**Vol**	**V/C**	**Delay (s)**	**LOS**	**Vol**	**V/C**	**Delay (s)**	**LOS**
PM Peak Hour													
Weber St N & Randall Dr	Overall	**-**	**0.59**	**18**	**B**	**-**	**0.59**	**18**	**B**	**-**	**0.72**	**21**	**C**
	WBL	295	0.70	36	D	295	0.70	36	D	295	0.75	39	D
	WBR	136	0.11	26	C	136	0.11	26	C	136	0.12	25	C
	NBTR	523	0.54	15	B	523	0.54	15	B	632	0.69	21	C
	SBL	28	0.07	7	A	28	0.07	7	A	28	0.09	9	A
	SBT	472	0.39	8	A	472	0.38	8	A	511	0.45	10	B

Table 6-10: Weber Street North & Randall Drive Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2031			Future Total 2031		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
WBL	748	17	33	39	34	113	112	23	60	70
WBR	30	6	18	26	6	20	37	7	20	33
NBTR	131	18	41	48	22	49	66	32	70	81
SBL	100	6	17	22	0	49	72	8	30	47
SBT	491	17	38	47	76	309	227	31	120	129
Weekday PM Peak Hour										
WBL	748	50	83	96	55	93	105	73	119	133
WBR	30	25	46	38	25	46	38	26	48	38
NBTR	131	47	92	114	46	90	107	63	120	130
SBL	100	7	20	31	7	20	23	8	29	45
SBT	491	39	80	102	37	70	85	44	90	113

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. During the PM peak hour, the westbound right 95th percentile and maximum queue exceeds the available storage length, however this is only a temporary condition. No additional queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. No additional constraints were identified with the addition of the site traffic.

6.2.2 Weber Street North and Northfield Drive West

The intersection capacity analysis at Weber Street North and Northfield Drive West is summarized in Table 6-11 and the queue analysis is summarized in Table 6-12.

Table 6-11: Weber Street North & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Northfield Dr W	**Overall**	**-**	**0.49**	**33**	**C**	**-**	**0.53**	**34**	**C**	**-**	**0.59**	**35**	**D**
	EBL	144	0.34	22	C	144	0.39	23	C	156	0.47	26	C
	EBTR	890	0.72	36	D	975	0.79	39	D	994	0.81	40	D
	WBL	68	0.35	30	C	68	0.39	32	C	68	0.40	33	C
	WBT	388	0.34	30	C	509	0.44	32	C	613	0.53	33	C
	WBR	122	0.08	27	C	122	0.08	27	C	122	0.08	27	C
	NBL	31	0.09	30	C	31	0.09	30	C	31	0.10	30	C
	NBTR	209	0.17	34	C	209	0.17	34	C	228	0.19	35	C
	SBL	161	0.34	47	D	161	0.34	47	D	210	0.43	49	D
	SBTR	308	0.25	27	C	308	0.25	27	C	415	0.34	28	C
Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Weber St N & Northfield Dr W	**Overall**	**-**	**0.64**	**41**	**D**	**-**	**0.66**	**35**	**D**	**-**	**0.77**	**42**	**D**
	EBL	112	0.52	35	D	112	0.65	43	D	152	0.89	73	E
	EBTR	673	0.61	36	D	776	0.60	31	C	834	0.65	33	C
	WBL	133	0.46	29	C	133	0.46	24	C	133	0.51	27	C
	WBT	1044	0.89	48	D	1135	0.77	34	C	1196	0.86	40	D
	WBR	154	0.18	32	C	154	0.11	24	C	154	0.11	24	C
	NBL	64	0.16	25	C	64	0.22	32	C	64	0.24	32	C
	NBTR	336	0.39	39	D	336	0.35	36	D	401	0.45	38	D
	SBL	258	0.43	46	D	**258**	**0.75**	**66**	**E**	**324**	**0.97**	**97**	**F**
	SBTR	457	0.45	37	D	457	0.39	32	C	508	0.46	33	C

Table 6-12: Weber Street North & Northfield Drive West Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2031			Future Total 2031		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	**90**	**139**	**265**	**190**	**141**	**266**	**190**	**165**	**255**	**190**
EBT	**330**	**438**	**790**	**628**	**391**	**737**	**623**	**568**	**775**	**629**
EBTR	**330**	**442**	**785**	**630**	**395**	**730**	**623**	**569**	**771**	**628**
WBL	45	14	29	36	13	29	37	13	30	41
WBT	151	29	52	57	40	70	77	43	76	89
WBT	151	30	53	60	42	72	81	44	75	83
WBR	65	13	25	35	12	22	25	10	21	29
NBL	95	5	15	20	6	16	23	6	33	42
NBT	166	19	44	59	21	48	66	35	116	117
NBTR	166	39	93	92	34	75	84	51	147	132
SBL1	**83**	**50**	**111**	**103**	**44**	**105**	**93**	**62**	**120**	**104**
SBL2	**83**	**75**	**144**	**123**	**75**	**150**	**112**	**92**	**156**	**125**
SBT	235	90	220	185	107	250	166	128	262	202
SBTR	235	52	138	169	52	138	151	56	138	178
Weekday PM Peak Hour										
EBL	90	18	34	41	23	43	51	26	44	49
EBT	330	58	84	87	54	83	88	63	93	106
EBTR	330	65	89	96	63	90	94	71	102	115
WBL	45	39	100	110	25	61	110	28	76	110
WBT	151	106	140	131	71	119	128	84	129	127
WBT	151	107	140	133	74	123	128	84	127	125
WBR	65	41	113	115	21	68	115	19	62	114
NBL	95	11	23	31	11	25	31	10	23	31
NBT	166	28	46	55	29	45	50	36	60	69
NBTR	166	30	52	63	31	48	53	40	64	74
SBL1	83	24	42	51	38	72	75	**96**	**120**	**104**
SBL2	83	32	52	65	48	83	84	**114**	**144**	**125**
SBT	235	32	58	68	39	71	91	142	253	209
SBTR	235	44	72	88	47	73	78	83	169	195
EBL	90	18	34	41	23	43	51	26	44	49

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. Results indicate that the eastbound through movement experiences heavy queues under existing conditions for the AM peak hour. These conditions are a function of the signal activation at the Northfield LRT station intersection. A lengthy stoppage occurs with the eastbound LRT arrival and departure from the transit station. As a result, eastbound through traffic queues upstream from the LRT station and impact the operations at the Weber Street North and Northfield Drive West intersection.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. The eastbound queues present during existing conditions continue to exist. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Good levels of service are maintained under future total conditions except for the eastbound left and southbound left movements during the PM Peak hour. The eastbound left begins to show some increased congestion with a v/c ratio of 0.89 in the PM peak. The southbound left movement operates with a v/c ratio of 0.97 but with a delay time of just under 100 seconds. For the southbound left movement, this result is a function of operating with a protected phase and potential downstream eastbound through queues imposed from the stoppage on Northfield Drive West at the Northfield LRT-Railway Crossing/Northfield intersection. The eastbound queues are similar to future background conditions, which indicates that the site traffic does not significantly impact the queues.

6.2.3 Weber Street North and Parkside Drive (South Intersection)

The intersection capacity analysis at Weber Street North and Parkside Drive (South Intersection) is summarized in Table 6-13 and the queue analysis is summarized in Table 6-14.

Table 6-13: Weber Street North & Parkside Drive (South Intersection) Capacity Analysis

Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Parkside Drive	**Overall**	**-**	**0.30**	**14**	**B**	**-**	**0.27**	**14**	**B**	**-**	**0.46**	**17**	**B**
	EBL	62	0.15	16	B	62	0.15	16	B	74	0.19	16	B
	EBTR	215	0.31	17	B	215	0.31	17	B	234	0.34	18	B
	WBL	76	0.20	16	B	76	0.20	16	B	252	0.65	28	C
	WBTR	204	0.30	17	B	204	0.30	17	B	251	0.37	18	B
	NBLTR	253	0.17	12	B	-	-	-	-	-	-	-	-
	NBLT	-	-	-	-	16	0.04	12	B	16	0.04	12	B
	NBTR	-	-	-	-	237	0.14	11	B	254	0.15	12	B
	SBLTR	406	0.28	13	B	-	-	-	-	-	-	-	-
	SBLT	-	-	-	-	30	0.06	12	B	30	0.06	12	B
	SBTR	-	-	-	-	376	0.23	12	B	482	0.29	13	B
Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Weber St N & Parkside Drive	**Overall**	**-**	**0.41**	**16**	**B**	**-**	**0.36**	**15**	**B**	**-**	**0.47**	**19**	**B**
	EBL	64	0.21	19	B	64	0.21	19	B	105	0.54	31	C
	EBTR	264	0.45	22	C	264	0.45	22	C	323	0.55	24	C
	WBL	110	0.37	23	C	110	0.37	23	C	128	0.52	28	C
	WBTR	286	0.48	23	C	286	0.48	23	C	413	0.70	29	C
	NBLTR	499	0.35	11	B	-	-	-	-	-	-	-	-
	NBLT	-	-	-	-	67	0.17	11	B	67	0.18	12	B
	NBTR	-	-	-	-	432	0.24	10	B	495	0.28	10	B
	SBLTR	506	0.33	11	B	-	-	-	-	-	-	-	-
	SBLT	-	-	-	-	35	0.08	10	B	35	0.09	10	B
	SBTR	-	-	-	-	471	0.27	10	B	521	0.31	11	B

Table 6-14: Weber Street & Parkside Drive (South Intersection) Queues

Mvmt	Lane Storage Lengths (m)	Existing Traffic			Future Background 2031			Future Total 2031		
		Weekday AM Peak Hour			Weekday AM Peak Hour			Weekday AM Peak Hour		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	60	11	23	33	11	24	32	13	28	35
EBTR	60	24	42	51	25	44	55	28	50	62
WBL	500	16	37	40	15	34	39	29	46	40
WBTR	500	27	54	64	28	56	69	35	76	94
NBLT	600	13	26	35	-					
NBTR	600	14	26	30						
NBL	600	-			3	11	16	3	9	13
NBT	600				11	26	35	11	23	28
NBTR	600				15	28	37	15	28	32
SBLT	300	14	31	47	-					
SBTR	300	18	39	56						
SBL	300	-			5	16	27	4	13	25
SBT	300				10	30	46	14	39	60
SBTR	300				16	40	59	21	47	65
Weekday PM Peak Hour										
EBL	60	13	28	44	14	28	43	21	43	54
EBTR	**60**	**32**	**56**	**67**	**32**	**55**	**69**	**43**	**88**	**99**
WBL	500	22	42	40	24	44	40	23	44	40
WBTR	500	38	69	82	39	64	74	42	78	99
NBLT	600	22	38	41	-					
NBTR	600	19	34	37						
NBL	600	-			9	19	25	10	22	31
NBT	600				15	28	33	19	35	41
NBTR	600				18	32	38	26	45	57
SBLT	300	16	34	49						
SBTR	300	20	39	53						
SBL	300	-			6	17	26	5	15	26
SBT	300				12	27	35	14	33	48
SBTR	300				17	32	38	21	41	52

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. The exception to this is the EBTR movement during the PM peak hour, where the maximum queue is expected to exceed the lane storage length by 7 m. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. No queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. The eastbound through-right movement during the PM peak hour may exhibit queuing issues, however, the section of Weber Street contains a mix of residential and industrial uses which tends to form low traffic volumes. No additional queuing issues are anticipated.

6.2.4 Parkside Drive and Northfield Drive West

The intersection capacity analysis at Parkside Drive and Northfield Drive West is summarized in Table 6-15 and the queue analysis is summarized in Table 6-16.

Table 6-15:Parkside Drive & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Parkside Drive & Northfield Drive West	**Overall**	**-**	**0.67**	**34**	**C**	**-**	**0.70**	**35**	**C**	**-**	**0.82**	**37**	**D**
	EBL	2	0.00	22	C	2	0.00	21	C	21	0.10	22	C
	EBTR	1073	0.90	43	D	1158	0.91	43	D	1207	0.95	50	D
	WBL	393	0.90	54	D	**393**	**0.92**	**62**	**E**	**393**	**0.92**	**62**	**E**
	WBTR	667	0.33	9	A	788	0.37	9	A	968	0.46	10	B
	NBLT	24	0.06	29	C	24	0.06	32	C	53	0.14	33	C
	NBR	215	0.15	31	C	215	0.15	33	C	215	0.15	33	C
	SBL	45	0.12	30	C	45	0.13	33	C	94	0.27	36	D
	SBTR	11	0.02	29	C	11	0.02	31	C	239	0.54	41	D
Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Parkside Drive & Northfield Drive West	**Overall**	**-**	**0.59**	**22**	**C**	**-**	**0.75**	**24**	**C**	**-**	**0.95**	**46**	**D**
	EBL	0	0.00	0	A	0	0.00	0	A	90	0.63	34	C
	EBTR	933	0.71	28	C	1036	0.74	26	C	1074	0.66	22	C
	WBL	288	0.74	26	C	288	0.89	48	D	288	0.86	39	D
	WBTR	1410	0.70	15	B	1501	0.75	16	B	**1906**	**1.05**	**61**	**E**
	NBLT	47	0.12	26	C	47	0.12	26	C	145	0.38	39	D
	NBR	396	0.28	29	C	396	0.46	32	C	396	0.62	47	D
	SBL	88	0.22	28	C	88	0.22	27	C	190	0.70	54	D
	SBTR	31	0.06	25	C	31	0.06	25	C	190	0.44	40	D

Table 6-16: Parkside Drive & Northfield Drive West Queues

Move-ment	Lane Storage Lengths (m)	Existing Traffic			Future Background 2031			Future Total 2031		
		Weekday AM Peak Hour			Weekday AM Peak Hour			Weekday AM Peak Hour		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	40	1	14	24	0	3	5	13	57	95
EBT	147	117	149	133	119	151	133	103	153	133
EBTR	147	129	134	135	129	142	134	130	133	134
WBL	21	60	91	80	68	93	80	69	98	80
WBT	165	52	110	107	73	134	114	80	137	108
WBTR	165	38	73	82	49	91	97	63	115	108
NBLT	500	6	16	25	17	77	86	56	170	227
NBR	500	45	92	100	108	261	282	158	355	338
SBL	50	18	42	49	33	63	53	30	41	38
SBTR	50	5	23	34	20	61	55	43	52	57
Weekday PM Peak Hour										
EBL	40	0	0	0	0	0	0	32	79	71
EBT	147	59	99	105	54	95	115	79	143	129
EBTR	147	72	115	125	65	105	121	90	147	134
WBL	21	49	83	80	54	85	80	54	92	80
WBT	165	59	111	108	65	121	108	84	130	108
WBTR	165	64	117	108	69	128	110	89	132	108
NBLT	500	10	25	30	12	26	34	151	318	322
NBR	500	51	85	99	63	118	142	273	462	414
SBL	50	21	42	42	19	36	36	36	39	38
SBTR	50	9	32	36	12	34	44	48	58	59

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. Of note, the westbound left movement operates with some congestion during the AM peak hour with a v/c ratio of 0.90 and LOS "D". The queues for this movement exceed the available storage, which is partly a function of the opposing eastbound flows which limit the westbound left movement during the normal east-west phase. The 95th percentile queue length for all other movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

It should be noted that field observations identified westbound through-right queues of around 100 m from the Northfield LRT Transit Station/Railway Crossing & Northfield Drive intersection during the PM peak hour. These conditions are a direct result of eastbound through vehicles situated in the middle of the Parkside/Northfield intersection stemming from queueing at the Northfield LRT Station-Railway Crossing/ Northfield intersection and when a northbound LRT vehicle arrives at the LRT station. This queue effectively blocks the westbound left from performing its intended maneuver and the westbound left queues spills over into the median through lane.

Given that the Synchro software does not permit vehicle to block an intersection, the LOS result is not entirely reflective of existing conditions and represents a more favorable outcome.

As a result of the heavy queue conditions observed form the field, mitigation measures are recommended to alleviate this condition Such mitigation measures include added signage of "DO NOT BLOCK INTERSECTION" and painting the intersection with a cross hatch pattern to emphasizes this notion. Should resource s be available, The City can add traffic monitoring personnel to direct traffic and as necessary, impose traffic tickets. If such measures are implemented it is expected that the conditions would more closely resemble the synchro results.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. The delay to the westbound left movement during the AM peak hour increases by 8 seconds with a v/c ratio of 0.92, and the queuing issues identified during existing conditions continue to exist. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: No additional constraints are observed for the AM peak hour. For the PM peak hour, the westbound through-right and southbound left movements operate at practical capacity with a v/c ratio above 1.00 with an optimized timing plan. An eastbound left advance phase was introduced to ease this movement to avoid heavy vehicle queueing spilling back onto the eastbound through movement. While the westbound through-right movement operates at capacity, the overall delay time is about 35 seconds.

6.2.5 Northfield LRT Transit Station/Railway Crossing & Northfield Drive West

The intersection capacity analysis at Northfield LRT Transit Station/Railway Crossing and Northfield Drive West is summarized in Table 6-17 and the queue analysis is summarized in Table 6-18.

Table 6-17: Northfield LRT Transit Station/Railway Crossing & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Transit Station & Northfield	**Overall**	**-**	**0.43**	**14**	**B**	**-**	**0.47**	**15**	**B**	**-**	**0.51**	**15**	**B**
	EBT	1309	0.55	22	C	1394	0.59	23	C	1492	0.63	24	C
	WBT	1060	0.37	4	A	1181	0.43	5	A	1361	0.48	5	A
Mvmt		Existing				Future Background 2031				Future Total 2031			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Transit Station & Northfield	**Overall**	**-**	**0.55**	**14**	**B**	**-**	**0.59**	**14**	**B**	**-**	**0.71**	**16**	**B**
	EBT	1387	0.57	22	C	1490	0.61	23	C	1630	0.69	25	C
	WBT	1698	0.60	6	A	1789	0.64	7	A	2194	0.78	9	A

Table 6-18: Northfield LRT Transit Station/Railway Crossing & Northfield Drive West Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2031			Future Total 2031		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBT	165	61	113	114	76	132	121	54	97	110
EBT	165	116	120	122	114	124	117	115	119	123
EBT	165	85	86	85	85	87	85	85	86	85
WBT	520	15	19	21	15	22	27	15	18	22
WBT	520	14	18	19	15	19	24	15	19	22
Weekday PM Peak Hour										
EBT	165	77	121	113	90	127	117	111	138	126
EBT	165	84	126	116	98	132	118	115	121	125
EBT	165	74	100	85	80	98	85	85	87	85
WBT	520	15	18	21	15	18	21	15	20	25
WBT	520	15	18	22	15	19	22	16	19	24

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. No queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. No queuing issues are anticipated. No additional constraints were identified with the addition of the site traffic.

6.3 2031 – UNSIGNALIZED INTERSECTIONS

The results for the studied unsignalized intersections under each traffic scenario for the 2031 horizon year during the weekday AM and PM peak hours are summarized in the sections below.

6.3.1 Weber Street North and Parkside Drive (North Intersection)

The intersection capacity analysis at Weber Street North and Parkside Drive (North Intersection) is summarized in Table 6-19.

Table 6-19: Weber Street North & Parkside Drive (North Intersection) Capacity Analysis

Mvmt	Existing					Future Background 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
AM Peak Hour										
WBL	50	0.13	16	C	1	50	0.13	16	C	1
WBR	63	0.08	10	B	0	63	0.08	10	B	0
SBL	52	0.04	8.2	A	0	52	0.04	8	A	0
PM Peak Hour										
WBL	43	0.21	27	D	1	43	0.15	11	B	1
WBR	107	0.15	11	B	1	107	0.09	9	A	0
SBL	93	0.09	8.8	A	0	93	0.09	9	A	0

The intersection operates with good levels of service under existing and future conditions.

A peak hour signal warrant calculation was conducted at the intersection of Weber Street North at Parkside Drive. The analysis was based on the Ministry of Transportation (MTO) Book 12 requirements for the installation of a traffic signal. The analysis examines the combined AM and PM peak hour volumes. The signal warrant is summarized in Table 6-20.

Table 6-20: Weber Street North & Parkside Drive (North Intersection) Signal Warrant Analysis

Warrant	Percent Compliant	Warrant Satisfied
Warrant 1 – Minimum Vehicular Volume		
1A	74%	No
1B	71%	No
Warrant 2 – Delay to Cross Traffic		
2A	54%	No
2B	97%	No

The signal warrant analysis indicated that a signal is not required at the intersection. However, delays to cross traffic based on warrant 2B are at 97%. Additionally, a signal is recommended to alleviate queues at the intersection, and to improve progression along the Weber Street North corridor for northbound and southbound traffic. The signal would also encourage drivers in the area to use this intersection as a viable option as opposed to Parkside Drive and Northfield Drive West, further alleviating the congestion along Northfield Drive West.

The intersection capacity analysis for the signalized intersection under future total conditions is summarized in Table 6-21 and the queue assessment is summarized in Table 6-22.

Table 6-21: Weber Street North & Parkside Drive (North Intersection) Capacity Analysis (Signalized)

Mvmt	Future Total 2031			
	Vol	V/C	Delay (s)	LOS
AM Peak Hour				
Overall	**-**	**0.29**	**12**	**B**
WBL	206	0.53	25	C
WBR	312	0.21	22	C
NBTR	408	0.18	5	A
SBL	52	0.09	5	A
SBT	419	0.20	5	A
Mvmt	**Future Total 2031**			
	Vol	V/C	Delay (s)	LOS
PM Peak Hour				
Overall	**-**	**0.34**	**9**	**A**
WBL	142	0.43	26	C
WBR	219	0.15	24	C
NBTR	635	0.27	4	A
SBL	114	0.23	5	A
SBT	692	0.31	5	A

Table 6-22: Weber Street North & Parkside Drive (North Intersection) Queues (Signalized)

Movement	Lane Storage Lengths (m)	Future Total 2031		
		Avg. Queue	95th Percentile Queue	Max. Queue
Weekday AM Peak Hour				
WBL	92	42	77	68
WBR	92	18	39	45
NBT	235	16	37	48
NBTR	235	8	23	33
SBLT	255	13	62	62
SBT	255	66	207	167
SBL	33	35	113	143
SBT2	255	13	71	46
Weekday PM Peak Hour				
WBL	92	23	43	51
WBR	92	16	25	29
NBT	235	23	70	109
NBTR	235	24	80	117
SBLT	255	24	66	68
SBT	255	42	142	136
SBL	33	28	92	126

With signalization, no capacity constraints or queueing issues are identified under future total conditions.

6.3.2 Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive

The intersection capacity analysis at Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive is summarized in Table 6-23.

Table 6-23:Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive Capacity Analysis

Mvmt	Existing Traffic					Future Background 2031					Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	106	0.07	11	A	0	106	0.01	11	B	0	106	0.02	16	C	0
NBLTR	5	0.01	11	B	0	5	0.01	11	B	0	5	0.02	16	C	0
SBL	45	0.01	11	6	0	45	0.07	11	B	0	45	0.14	18	C	1
SBTR	118	0.12	9	A	0	104	0.12	9	A	0	118	0.18	12	B	1
Weekday PM Peak															
EBL	97	0.04	12	B	0	97	0.07	8	A	0	9	0.08	8	A	0
NBLTR	20	0.04	12	B	0	20	0.04	12	B	0	20	0.06	17	C	0
SBL	20	0.04	12	B	0	20	0.04	12	B	0	20	0.07	18	C	0
SBTR	104	0.12	10	A	0	104	0.12	10	A	0	104	0.14	11	B	1

The intersection operates with good levels of service under existing and future conditions.

6.3.3 Sobeys East Driveway/North-South Access Road and Parkside Drive

The intersection capacity analysis at Sobeys East Driveway/North-South Access Road and Parkside Drive is summarized in Table 6-24.

Table 6-24:Sobeys East Driveway/North-South Access Road and Parkside Drive Capacity Analysis

Mvmt	Existing Traffic					Future Background 2031					Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	2	0.00	7.3	A	0	2	0.00	7	A	0	2	0.00	8.2	A	0
WBL	-					-					58	0.04	7.5	A	0.1
NBLTR	8	0.01	10	A	0	8	0.01	10	A	0	26	0.07	16	A	0
SBLTR	24	0.03	10	A	0	24	0.03	10	A	0	24	0.06	15	C	0
Weekday PM Peak															
EBL	3	0.00	7.4	A	0	3	0.00	7	A	0	3	0.00	7.9	A	0
WBL	-					-					30	0.02	7.7	A	0.1
NBLTR	74	0.08	9	A	0	74	0.08	9	A	0	50	0.06	9	A	0
SBLTR	44	0.06	10	8	0	44	0.06	10	B	0	44	0.09	13	B	0

The intersection operates with good levels of service under existing and future conditions.

6.3.4 North-South Access Road and Northfield Drive West

The intersection capacity analysis at North-South Access Road and Northfield Drive West is summarized in Table 6-25.

Table 6-25: North-South Access Road and Northfield Drive West Capacity Analysis

Mvmt	Existing Traffic					Future Background 2031					Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	11	0.01	9	A	0	11	0.01	9	A	0	3	0.00	9	A	0
SBL	20	0.11	28	D	0	**20**	**0.15**	**36**	**E**	**1**	**16**	**0.13**	**37**	**E**	**0**
SBR	16	0.02	10	B	0	16	0.03	11	B	0	111	0.18	12	B	1
Weekday PM Peak															
EBL	27	0.05	13	B	0	27	0.06	13	B	0	23	0.06	14	B	0
SBL	**26**	**0.62**	**182**	**F**	**2**	**26**	**0.62**	**182**	**F**	**2**	**22**	**0.69**	**247**	**F**	**2**
SBR	34	0.09	16	C	0	34	0.09	16	C	0	85	0.26	20	C	1

During the AM peak hour, both southbound movements generally operate well. During the PM peak hour, under both existing and future conditions, the southbound left movement operates with some constraints. The heavy east-west volumes on Northfield Drive West limit the opportunity to complete this movement. The southbound right movement does not operate with any constraints.

6.3.5 Kumpf Drive/Private Driveway and Northfield Drive West

The intersection capacity analysis at Kumpf Drive/Private Driveway and Northfield Drive West is summarized in Table 6-26.

Table 6-26: Kumpf Drive/Private Driveway and Northfield Drive West Capacity Analysis

Mvmt	Existing Traffic					Future Background 2031					Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak															
NBR	17	0.05	16	6	0	17	0.05	17	C	0	17	0.06	18	C	0
SBR	33	0.08	15	B	0	33	0.09	16	C	0	33	0.11	18	C	0
Weekday PM Peak															
NBR	43	0.14	19	C	1	43	0.14	19	C	1	43	0.16	20	C	1
SBR	45	0.19	24	C	1	45	0.19	24	C	1	45	0.27	34	D	1

The intersection operates with good levels of service under existing and future conditions.

6.3.6 Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway

The intersection capacity analysis at Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway is summarized in Table 6-27.

Table 6-27: Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLR	253	0.26	10	A	1
WBLR	443	0.51	13	B	3
Weekday PM Peak					
EBLR	181	0.21	10	B	1
WBLR	231	0.34	13	B	2

The intersection operates with good levels of service under future conditions.

6.3.7 Parkside Drive and Nordia Loading Driveway

The intersection capacity analysis at Parkside Drive and Nordia Loading Driveway is summarized in Table 6-28.

Table 6-28: Parkside Drive and Nordia Loading Driveway Capacity Analysis

Mvmt	Existing					Future Background 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak										
EBLR	2	0.00	10	A	0	2	0.00	10	A	0
NBL	1	0.00	8.3	A	0	1	0.00	8	A	0
Weekday PM Peak										
EBLR	2	0.00	10	B	0	2	0.00	10	B	0
NBL	1	0.00	9	A	0	1	0.00	9	A	0

The intersection operates with good levels of service under existing and future conditions. Under future total conditions, the driveway is removed.

6.3.8 Parkside Drive and Building I South-East Driveway/Building J South-West Driveway

The intersection capacity analysis at Parkside Drive and Building I South-East Driveway/Building J South-West Driveway is summarized in Table 6-29.

Table 6-29: Parkside Drive and Building I South-East Driveway/Building J South-West Driveway Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLTR	9	0.01	9	A	0
WBLTR	8	0.02	14	B	0
NBL	11	0.01	7	A	0
Weekday PM Peak					
EBLTR	25	0.03	9	A	0
WBLTR	40	0.09	14	B	0
NBL	26	0.02	8	A	0

The intersection operates with good levels of service under future conditions.

6.3.9 Parkside Drive/Parkside Drive Extension and Future East-West Road

The intersection capacity analysis at Parkside Drive/Parkside Drive Extension and Future East-West Road is summarized in Table 6-30.

Table 6-30: Parkside Drive/Parkside Drive Extension and Future East-West Road Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLTR	57	0.07	8	A	0
WBLTR	2	0.00	8	A	0
NBLTR	527	0.62	14	B	4
SBLTR	4	0.01	8	A	0
Weekday PM Peak					
EBLTR	128	0.15	8	A	1
WBLTR	12	0.02	8	A	0
NBLTR	342	0.42	11	B	2
SBLTR	4	0.01	8	A	0

The intersection operates with good levels of service under future conditions.

6.3.10 Building K South-West Driveway/Building I North-West Driveway and Future East-West Road

The intersection capacity analysis at Building K South-West Driveway/Building I North-West Driveway and Future East-West Road is summarized in Table 6-31.

Table 6-31: Building K South-West Driveway/Building I North-West Driveway and Future East-West Road Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak Hour					
EBL	1	0.00	8	A	0
NBLTR	1	0.00	13	B	0
SBLTR	1	0.00	13	B	0
Weekday PM Peak Hour					
EBL	0	0.00	0	A	0
NBLTR	5	0.01	12	B	0
SBLTR	5	0.01	12	B	0

The intersection operates with good levels of service under future conditions.

6.3.11 Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway

The intersection capacity analysis at Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway is summarized in Table 6-32.

Table 6-32: Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
	Weekday AM Peak				
EBLTR	1	0.00	8	A	0
WBLTR	3	0.00	9	A	0
NBL	1	0.00	7	A	0
	Weekday PM Peak				
EBLTR	1	0.00	8	A	0
WBLTR	3	0.00	9	A	0
NBL	1	0.00	7	A	0

The intersection operates with good levels of service under future conditions.

6.3.12 Building L South-East Driveway/Building J North-East Driveway and Future East-West Road

The intersection capacity analysis at Building L South-East Driveway/Building J North-East Driveway and Future East-West Road is summarized in Table 6-33.

Table 6-33: Building L South-East Driveway/Building J North-East Driveway and Future East-West Road Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
	Weekday AM Peak				
EBLR	11	0.01	7	A	0
NBLT	0	0.00	7	A	0
SBTR	2	0.00	6	A	0
	Weekday PM Peak				
EBLR	5	0.01	7	A	0
NBLT	2	0.00	7	A	0
SBTR	10	0.01	6	A	0

The intersection operates with good levels of service under future conditions.

6.4 2041 – SIGNALIZED INTERSECTIONS

The results for the studied signalized intersection under each traffic scenario for the 2041 horizon year during the weekday AM and PM peak hours are summarized in the sections below.

6.4.1 Weber Street North and Randall Drive

The intersection capacity analysis at Weber Street North and Randall Drive is summarized in Table 6-34 and the queue analysis is summarized in Table 6-35.

Table 6-34: Weber Street North & Randall Drive Capacity Analysis

Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Randall Dr	**Overall**	**-**	**0.34**	**8**	**A**	**-**	**0.34**	**8**	**A**	**-**	**0.50**	**8**	**A**
	WBL	72	0.40	33	C	72	0.40	33	C	72	0.40	33	C
	WBR	24	0.01	30	C	24	0.01	30	C	24	0.01	30	C
	NBTR	378	0.32	6	A	378	0.32	6	A	627	0.52	8	A
	SBL	45	0.07	3	A	45	0.07	3	A	45	0.09	4	A
	SBT	399	0.29	3	A	399	0.28	3	A	399	0.29	3	A
Mvmt		**Existing**				**Future Background 2041**				**Future Total 2041**			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Weber St N & Randall Dr	Overall	**-**	**0.59**	**18**	**B**	**-**	**0.72**	**21**	**C**	**-**	**0.72**	**21**	**C**
	WBL	295	0.70	36	D	295	0.75	39	D	295	0.75	39	D
	WBR	136	0.11	26	C	136	0.12	25	C	136	0.12	25	C
	NBTR	523	0.54	15	B	632	0.69	21	C	632	0.69	21	C
	SBL	28	0.07	7	A	28	0.09	9	A	28	0.09	9	A
	SBT	472	0.39	8	A	511	0.45	10	B	511	0.45	10	B

Table 6-35: Weber Street North & Randall Drive Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2041			Future Total 2041		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
WBL	748	17	33	39	36	111	127	19	41	55
WBR	30	6	18	26	5	18	30	6	21	33
NBTR	131	18	41	48	23	54	66	26	61	79
SBL	100	6	17	22	9	49	73	10	49	72
SBT	491	17	38	47	82	328	317	44	161	124
Weekday PM Peak Hour										
WBL	748	50	83	96	24	90	105	137	437	401
WBR	30	25	46	38	27	48	38	22	46	38
NBTR	131	47	92	114	45	86	105	61	124	139
SBL	100	7	20	31	6	18	24	9	49	72
SBT	491	39	80	102	35	64	86	74	188	191

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. No queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. During the PM peak hour, the westbound left and southbound through average and maximum queues can be accommodated within the available storage length. The 50th percentile queues exceed the available storage length; however, this is only a temporary condition. No additional constraints were identified with the addition of the site traffic.

6.4.2 Weber Street North and Northfield Drive West

The intersection capacity analysis at Weber Street North and Northfield Drive West is summarized in Table 6-36 and the queue analysis is summarized in Table 6-37.

Table 6-36: Weber Street North & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Northfield Dr W	**Overall**	**-**	**0.49**	**33**	**C**	**-**	**0.55**	**36**	**D**	**-**	**0.62**	**37**	**D**
	EBL	144	0.34	22	C	144	0.42	24	C	156	0.51	27	C
	EBTR	890	0.72	36	D	1039	0.84	41	D	1058	0.86	43	D
	WBL	68	0.35	30	C	68	0.43	34	C	68	0.43	35	C
	WBT	388	0.34	30	C	571	0.49	33	C	675	0.58	35	C
	WBR	122	0.08	27	C	122	0.08	27	C	122	0.08	27	C
	NBL	31	0.09	30	C	31	0.09	30	C	31	0.10	30	C
	NBTR	209	0.17	34	C	209	0.17	34	C	228	0.19	35	C
	SBL	161	0.34	47	D	161	0.34	47	D	210	0.43	49	D
	SBTR	308	0.25	27	C	308	0.25	27	C	415	0.34	28	C
Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Weber St N & Northfield Dr W	**Overall**	**-**	**0.64**	**41**	**D**	**-**	**0.67**	**36**	**D**	**-**	**0.79**	**43**	**D**
	EBL	112	0.52	35	D	112	0.72	50	D	**152**	**0.98**	**94**	**F**
	EBTR	673	0.61	36	D	820	0.63	32	C	882	0.69	34	C
	WBL	133	0.46	29	C	133	0.46	24	C	133	0.51	27	C
	WBT	1044	0.89	48	D	1193	0.78	33	C	1254	0.87	39	D
	WBR	154	0.18	32	C	154	0.11	23	C	154	0.11	23	C
	NBL	64	0.16	25	C	64	0.23	33	C	64	0.25	33	C
	NBTR	336	0.39	39	D	336	0.36	37	D	401	0.47	39	D
	SBL	258	0.43	46	D	**258**	**0.75**	**66**	**E**	**324**	**0.97**	**97**	**F**
	SBTR	457	0.45	37	D	457	0.40	33	C	508	0.47	34	C

Table 6-37: Weber Street North & Northfield Drive West Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2041			Future Total 2041		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	**90**	**139**	**265**	**190**	**160**	**264**	**190**	**166**	**257**	**190**
EBT	**600**	**438**	**790**	**628**	**503**	**791**	**626**	**590**	**729**	**630**
EBTR	**600**	**442**	**785**	**630**	**506**	**786**	**628**	**591**	**725**	**630**
WBL	45	14	29	36	14	29	36	89	22	28
WBT	151	29	52	57	51	81	87	46	86	85
WBT	151	30	53	60	53	81	90	46	86	86
WBR	65	13	25	35	13	24	31	9	21	26
NBL	95	5	15	20	4	14	22	11	59	42
NBT	166	19	44	59	41	150	110	51	155	121
NBTR	166	39	93	92	72	220	129	**82**	**200**	**176**
SBL1	**83**	**50**	**111**	**103**	**70**	**128**	**104**	**62**	**123**	**99**
SBL2	**83**	**75**	**144**	**123**	**97**	**158**	**125**	**84**	**154**	**121**
SBT	235	90	220	185	154	278	212	116	253	179
SBTR	235	52	138	169	63	172	201	69	166	173
Weekday PM Peak Hour										
EBL	90	18	34	41	22	41	47	41	107	112
EBT	330	58	84	87	62	95	111	75	134	143
EBTR	330	65	89	96	69	100	113	84	141	151
WBL	45	39	100	110	27	64	85	21	51	77
WBT	151	106	140	131	75	118	127	69	119	123
WBT	151	107	140	133	78	122	127	67	117	130
WBR	65	41	113	115	19	58	81	19	60	111
NBL	95	11	23	31	11	24	31	12	34	52
NBT	166	28	46	55	29	45	51	43	86	104
NBTR	166	30	52	63	30	47	52	48	93	105
SBL1	83	24	42	51	**51**	**93**	**94**	**84**	**131**	**104**
SBL2	83	32	52	65	**60**	**109**	**110**	**101**	**156**	**125**
SBT	235	32	58	68	51	116	127	122	253	214
SBTR	235	44	72	88	52	86	110	70	150	183
EBL	90	18	34	41	22	41	47	41	107	112

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. Like the 2031 horizon results, the eastbound movements experience heavy queues under existing conditions for the AM peak hour. These conditions are a function of the signal activation at the Northfield LRT station intersection. A lengthy stoppage occurs with an eastbound LRT arrival and departure from the transit station. As a result, eastbound through traffic queues upstream from the LRT station and impact the operations at the Weber Street North and Northfield Drive West intersection.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. The eastbound queues present during existing conditions continue to exist. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Good levels of service are maintained under future total conditions except for the eastbound left and southbound left movements during the PM Peak hour. The eastbound left begins to show some increased congestion with a v/c ratio of 0.98 in the PM peak. The southbound left movement operates at close to capacity with a v/c ratio of 0.97 but with a delay time of just under 100 seconds. For the southbound left movement, this result is a function of operating with a protected phase and potential downstream eastbound through queues imposed from the stoppage on Northfield Drive West at the Northfield LRT-Railway Crossing/Northfield intersection. The eastbound queues continue to exist.

6.4.3 Weber Street North and Parkside Drive (South Intersection)

The intersection capacity analysis at Weber Street North and Parkside Drive (South Intersection) is summarized in Table 6-38 and the queue analysis is summarized in Table 6-39.

Table 6-38: Weber Street North & Parkside Drive (South Intersection) Capacity Analysis

Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Weber St N & Parkside Drive	**Overall**	**-**	**0.30**	**14**	**B**	**-**	**0.27**	**14**	**B**	**-**	**0.46**	**17**	**B**
	EBL	62	0.15	16	B	62	0.15	16	B	74	0.19	16	B
	EBTR	215	0.31	17	B	215	0.31	17	B	234	0.34	18	B
	WBL	76	0.20	16	B	76	0.20	16	B	252	0.65	28	C
	WBTR	204	0.30	17	B	204	0.30	17	B	251	0.37	18	B
	NBLTR	253	0.17	12	B	-				-			
	NBL	-				16	0.04	12	B	16	0.04	12	B
	NBTR	-				237	0.14	11	B	254	0.15	12	B
	SBLTR	406	0.28	13	B	-				-			
	SBL	-				30	0.06	12	B	30	0.06	12	B
	SBTR	-				376	0.23	12	B	482	0.29	13	B
Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Weber St N & Parkside Drive	**Overall**	**-**	**0.41**	**16**	**B**	**-**	**0.47**	**19**	**B**	**-**	**0.47**	**19**	**B**
	EBL	64	0.22	20	B	64	0.21	19	B	105	0.54	31	C
	EBTR	264	0.45	22	C	264	0.45	22	C	323	0.55	24	C
	WBL	110	0.38	23	C	110	0.37	23	C	128	0.52	28	C
	WBTR	286	0.49	23	C	286	0.48	23	C	413	0.70	29	C
	NBLTR	499	0.35	11	B	-				-			
	NBL	-				67	0.17	11	B	67	0.18	12	B
	NBTR	-				432	0.24	10	B	495	0.28	10	B
	SBLTR	506	0.33	11	B	-				-			
	SBL	-				35	0.08	10	B	35	0.09	10	B
	SBTR	-				471	0.27	10	B	521	0.31	11	B

Table 6-39: Weber Street & Parkside Drive (South Intersection) Queues

Mvmt	Lane Storage Lengths (m)	Existing Traffic			Future Background 2031			Future Total 2031		
		Weekday AM Peak Hour			Weekday AM Peak Hour			Weekday AM Peak Hour		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	60	11	23	33	11	22	24	14	30	42
EBTR	60	24	42	51	22	38	45	29	60	78
WBL	500	16	37	40	16	36	40	25	46	40
WBTR	500	27	54	64	26	56	67	26	62	82
NBLT	600	13	26	35	-					
NBTR	600	14	26	30						
NBL	600	-			2	8	12	3	10	11
NBT	600				11	21	25	11	23	29
NBTR	600				15	29	35	18	37	44
SBLT	300	14	31	47	-					
SBTR	300	18	39	56						
SBL	300	-			3	10	14	4	15	29
SBT	300				10	27	46	13	37	61
SBTR	300				15	36	58	20	50	72
Weekday PM Peak Hour										
EBL	60	13	28	44	13	31	45	23	54	55
EBTR	**60**	**32**	**56**	**67**	**34**	**56**	**65**	**94**	**251**	**232**
WBL	500	22	42	40	25	43	40	22	42	40
WBTR	500	38	69	82	41	68	76	40	74	93
NBLT	600	22	38	41	-					
NBTR	600	19	34	37						
NBL	600	-			11	22	28	10	21	24
NBT	600				16	28	35	28	81	98
NBTR	600				19	34	43	36	93	108
SBLT	300	16	34	49						
SBTR	300	20	39	53						
SBL	300	-			5	13	21	5	15	22
SBT	300				13	30	44	13	32	49
SBTR	300				18	37	51	19	41	57

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. No queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. It is noted that the queues for the EBTR movement are anticipated to extend past the available storage length. However, minimal delays are expected for the movement, and it is anticipated that courtesy gaps will be provided along the EBTR movement.

6.4.4 Parkside Drive and Northfield Drive West

The intersection capacity analysis at Parkside Drive and Northfield Drive West is summarized in Table 6-40 and the queue analysis is summarized in Table 6-41.

Table 6-40:Parkside Drive & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Parkside Drive & Northfield Drive West	**Overall**	**-**	**0.67**	**34**	**C**	**-**	**0.74**	**34**	**C**	**-**	**0.87**	**36**	**D**
	EBL	2	0.00	22	C	2	0.00	19	B	21	0.09	20	B
	EBTR	1073	0.90	43	D	1222	0.90	40	D	1271	0.93	43	D
	WBL	393	0.90	54	D	**393**	**0.96**	**72**	**E**	**393**	**0.97**	**76**	**E**
	WBTR	667	0.33	9	A	850	0.39	9	A	1030	0.48	9	A
	NBLT	24	0.06	29	C	24	0.07	33	C	53	0.15	35	D
	NBR	215	0.15	31	C	215	0.15	35	C	215	0.15	35	D
	SBL	45	0.12	30	C	45	0.13	35	C	94	0.29	38	D
	SBTR	11	0.02	29	C	11	0.02	33	C	239	0.57	45	D
Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Parkside Drive & Northfield Drive West	**Overall**	**-**	**0.59**	**22**	**C**	**-**	**0.77**	**24**	**C**	**-**	**0.97**	**46**	**D**
	EBL	0	0.00	0	A	0	0.00	0	A	90	0.63	34	C
	EBTR	933	0.71	28	C	1080	0.75	26	C	1118	0.66	21	C
	WBL	288	0.74	26	C	288	0.90	50	D	288	0.86	40	D
	WBTR	1410	0.70	15	B	1559	0.76	16	B	**1964**	**1.05**	**61**	**E**
	NBLT	47	0.12	26	C	47	0.12	26	C	145	0.40	41	D
	NBR	396	0.28	29	C	396	0.49	33	C	396	0.67	50	D
	SBL	88	0.22	28	C	88	0.23	28	C	**190**	**0.76**	**62**	**E**
	SBTR	31	0.06	25	C	31	0.06	25	C	190	0.47	42	D

Table 6-41:Parkside Drive & Northfield Drive West Queues

Mvmt	Lane Storage Lengths (m)	Existing Traffic			Future Background 2041			Future Total 2041		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBL	40	1	14	24	0	3	5	12	49	94
EBT	147	117	149	133	117	152	132	105	148	134
EBTR	147	129	134	135	130	133	134	129	132	132
WBL	**21**	**60**	**91**	**80**	**74**	**94**	**80**	**64**	**107**	**80**
WBT	165	52	110	107	93	142	115	81	143	108
WBTR	165	38	73	82	42	88	100	70	123	108
NBLT	500	6	16	25	10	38	58	81	210	223
NBR	500	45	92	100	98	228	245	224	431	412
SBL	50	18	42	49	33	62	53	30	43	37
SBTR	50	5	23	34	17	57	67	42	50	55
Weekday PM Peak Hour										
EBL	40	0	0	0	0	0	0	31	80	95
EBT	147	59	99	105	54	98	102	83	144	130
EBTR	147	72	115	125	65	108	108	98	152	135
WBL	**21**	**49**	**83**	**80**	**58**	**91**	**80**	**50**	**88**	**80**
WBT	165	59	111	108	73	127	109	78	126	108
WBTR	165	64	117	108	72	126	109	85	131	108
NBLT	500	10	25	30	16	48	83	196	446	423
NBR	500	51	85	99	109	222	255	303	548	445
SBL	50	21	42	42	27	51	49	35	40	38
EBL	40	0	0	0	15	44	55	48	58	58

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. Of note, the westbound left movement operates with some congestion during the AM peak hour with a v/c ratio of 0.90 and LOS "D". The queues for this movement exceed the available storage, which is partly a function of the opposing eastbound flows which limit the westbound left movement during the normal east-west phase. The 95th percentile queue length for all other movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

It should be noted that field observations identified westbound through-right queues of around 100 m from the Northfield LRT Transit Station/Railway Crossing & Northfield Drive intersection during the PM peak hour. These conditions are a direct result of eastbound through vehicles situated in the middle of the Parkside/Northfield intersection stemming from queueing at the Northfield LRT Station-Railway Crossing/ Northfield intersection and when a northbound LRT vehicle arrives at the LRT station. This queue effectively blocks the westbound left from performing its intended maneuver and the westbound left queues spills over into the median through lane.

Given that the Synchro software does not permit vehicle to block an intersection, the LOS result is not entirely reflective of existing conditions and represents a more favorable outcome.

As a result of the heavy queue conditions observed form the field, mitigation measures are recommended to alleviate this condition Such mitigation measures include added signage of "DO NOT BLOCK INTERSECTION" and painting the intersection with a cross hatch pattern to emphasizes this notion. Should

resource s be available, The City can add traffic monitoring personnel to direct traffic and as necessary, impose traffic tickets. If such measures are implemented it is expected that the conditions would more closely resemble the synchro results.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. The delay to the westbound left movement during the AM peak hour increases by approximately 70 seconds with a v/c ratio of 0.96, and the queuing issues identified during existing conditions continue to exist. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: No additional constraints are observed for the AM peak hour. For the PM peak hour, the westbound through-right and southbound left movement operate at practical capacity with a v/c ratio above 1.00. The westbound through-right movement operates at practical capacity but with an overall delay time of around one minute. The southbound left movement is projected to experience heavy delay and this result is a function of lower green time allocated for north-south movements to provide more green time for the east-west movements. This constraint is expected to be managed within the section of Parkside Drive adjacent to the site with a median to allow for queuing associated with the constraint to not conflict with left-turning vehicles. This delay is only expected at the absolute peak times.

6.4.5 Northfield LRT Transit Station/Railway Crossing & Northfield Drive West

The intersection capacity analysis at Northfield LRT Transit Station/Railway Crossing and Northfield Drive West is summarized in Table 6-42 and the queue analysis is summarized in Table 6-43.

Table 6-42: Northfield LRT Transit Station/Railway Crossing & Northfield Drive West Capacity Analysis

Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
AM Peak Hour													
Transit Station & Northfield	**Overall**	**-**	**0.43**	**14**	**B**	**-**	**0.49**	**15**	**B**	**-**	**0.53**	**15**	**B**
	EBT	1309	0.55	22	C	1458	0.61	23	C	1556	0.65	24	C
	WBT	1060	0.37	4	A	1243	0.45	5	A	1423	0.50	5	A
Mvmt		Existing				Future Background 2041				Future Total 2041			
		Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
PM Peak Hour													
Transit Station & Northfield	**Overall**	**-**	**0.55**	**14**	**B**	**-**	**0.61**	**15**	**B**	**-**	**0.73**	**17**	**B**
	EBT	1387	0.57	22	C	1534	0.63	24	C	1674	0.70	25	C
	WBT	1698	0.60	6	A	1847	0.66	7	A	2252	0.80	10	A

Table 6-43: Northfield LRT Transit Station/Railway Crossing & Northfield Drive West Queues

Mvmt	Available Storage	Existing Traffic			Future Background 2041			Future Total 2041		
		Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.	Avg.	95th Percentile	Max.
Weekday AM Peak Hour										
EBT	165	61	113	114	60	106	116	52	95	108
EBT	165	116	120	122	114	115	14	115	119	122
EBT	165	85	86	85	85	85	85	85	86	85
WBT	520	15	19	21	16	22	29	14	19	20
WBT	520	14	18	19	15	20	24	15	19	22
Weekday PM Peak Hour										
EBT	165	77	121	113	101	135	120	112	132	126
EBT	165	84	126	116	107	132	119	115	121	123
EBT	165	74	100	85	83	93	85	85	86	85
WBT	520	15	18	21	15	17	19	15	19	22
WBT	520	15	18	22	16	20	23	15	18	23

Existing Conditions: Traffic operations are deemed acceptable as the intersection is operating within capacity with an overall v/c ratio of less than 1.00. The 95th percentile queue length for all movements are indicated to be accommodated within the available storage. All movements have a v/c below 1.00.

Future Background Conditions: The intersection experiences minor delay increases and a minor reduction in capacity. No queuing issues are anticipated. Overall, the intersection is expected to continue operating with minimal changes to operations compared to existing. All movements have a v/c below 1.00.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under future total conditions compared to future background conditions during both weekday peak hours. All movements have a v/c ratio below 1.00 with the added site traffic. No queuing issues are anticipated. No additional constraints were identified with the addition of the site traffic.

6.5 2041 – UNSIGNALIZED INTERSECTIONS

The results for the studied unsignalized intersections under each traffic scenario for the 2041 horizon year during the weekday AM and PM peak hours are summarized in the sections below.

6.5.1 Weber Street North and Parkside Drive (North Intersection)

The intersection capacity analysis at Weber Street North and Parkside Drive (North Intersection) is summarized in Table 6-44.

Table 6-44: Weber Street North & Parkside Drive (North Intersection) Capacity Analysis

Mvmt	Existing					Future Background 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
AM Peak Hour										
WBL	50	0.13	16	C	1	50	0.13	16	C	1
WBR	63	0.08	10	B	0	63	0.08	10	B	0
SBL	52	0.04	8	A	0	52	0.04	8	A	0
PM Peak Hour										
WBL	43	0.21	27	D	1	43	0.21	27	D	1
WBR	107	0.15	11	B	1	107	0.15	11	B	1
SBL	93	0.09	9	A	0	93	0.09	9	A	0

The intersection generally operates with good levels of service under existing and future conditions. As discussed in Section 6.3.1, the intersection is proposed to be signalized under future total conditions. The intersection capacity analysis for the signalized intersection under future total conditions is summarized in Table 6-45 and the queue assessment is summarized in Table 6-46.

Table 6-45: Weber Street North & Parkside Drive (North Intersection) Capacity Analysis (Signalized)

Mvmt	Future Total 2041			
	Vol	V/C	Delay (s)	LOS
AM Peak Hour				
Overall	**-**	**0.29**	**12**	**B**
WBL	206	0.54	25	C
WBR	312	0.21	22	C
NBTR	408	0.18	5	A
SBL	52	0.09	5	A
SBT	419	0.20	5	A
Mvmt	**Future Total 2041**			
	Vol	**V/C**	**Delay (s)**	**LOS**
PM Peak Hour				
Overall	**-**	**0.34**	**9**	**A**
WBL	142	0.44	26	C
WBR	219	0.15	24	C
NBTR	635	0.26	4	A
SBL	114	0.24	6	A
SBT	692	0.31	5	A

Table 6-46: Weber Street North & Parkside Drive (North Intersection) Queues (Signalized)

Movement	Lane Storage Lengths (m)	Future Total 2041		
		Avg. Queue	95th Percentile Queue	Max. Queue
Weekday AM Peak Hour				
WBL	92	35	75	64
WBR	92	17	39	47
NBT	235	12	34	51
NBTR	235	16	71	96
SBLT	255	18	65	61
SBT	255	71	229	178
SBL	33	41	154	151
SBT2	255	35	75	64
Weekday PM Peak Hour				
WBL	92	24	45	58
WBR	92	16	27	32
NBT	235	46	155	167
NBTR	235	57	176	174
SBLT	255	41	98	88
SBT	255	100	263	247
SBL	33	40	135	229

With signalization, no capacity constraints or queueing issues are identified under future total conditions.

6.5.2 Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive

The intersection capacity analysis at Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive is summarized in Table 6-47.

Table 6-47:Sobeys West Driveway/Plaza North-West Driveway and Parkside Drive Capacity Analysis

Mvmt	Existing Traffic					Future Background 2041					Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	106	0.07	11	A	0	106	0.07	8	A	0	106	0.10	9	A	0
NBLTR	5	0.01	11	B	0	0	0.00	0	A	0	0	0.00	0	A	0
SBL	45	0.01	11	6	0	5	0.01	11	B	0	5	0.02	16	C	0
SBTR	118	0.12	9	A	0	45	0.07	11	B	0	45	0.14	18	C	1
Weekday PM Peak															
EBL	97	0.04	12	B	0	97	0.07	8	A	0	97	0.08	8	A	0
NBLTR	20	0.04	12	B	0	0	0.00	0	A	0	0	0.00	0	A	0
SBL	20	0.04	12	B	0	20	0.04	12	B	0	20	0.01	17	C	0
SBTR	104	0.12	10	A	0	20	0.04	12	B	0	20	0.07	18	C	0

The intersection operates with good levels of service under existing and future conditions.

6.5.3 Sobeys East Driveway/North-South Access Road and Parkside Drive

The intersection capacity analysis at Sobeys East Driveway/North-South Access Road and Parkside Drive is summarized in Table 6-48.

Table 6-48:Sobeys East Driveway/North-South Access Road and Parkside Drive Capacity Analysis

Mvmt	Existing Traffic					Future Background 2041					Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	2	0.00	7.3	A	0	2	0.00	7	A	0	2	0.00	8	A	0
WBL	-					-					58	0.04	7.5	-	58
NBLTR	8	0.01	10	A	0	8	0.01	10	A	0	26	0.07	16	C	0
SBLTR	24	0.03	10	A	0	24	0.03	10	A	0	24	0.06	15	C	0
Weekday PM Peak															
EBL	3	0.00	7.4	A	0	3	0.00	7	A	0	3	0.00	8	A	0
WBL	-					-					30	0.02	7.7	-	30
NBLTR	74	0.08	9	A	0	74	0.08	9	A	0	50	0.08	12	B	0
SBLTR	44	0.06	10	8	0	44	0.06	10	B	0	44	0.09	13	B	0

The intersection operates with good levels of service under existing and future conditions.

6.5.4 North-South Access Road and Northfield Drive West

The intersection capacity analysis at North-South Access Road and Northfield Drive West is summarized in Table 6-49.

Table 6-49: North-South Access Road and Northfield Drive West Capacity Analysis

Mvmt	Existing Traffic					Future Background 2041					Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)	Vol	V/C	Delay (s)	LOS	95th Queue (Veh)
Weekday AM Peak															
EBL	11	0.01	9	A	0	11	0.01	9	A	0	3	0.00	10	A	0
SBL	20	0.11	28	D	0	**20**	**0.17**	**42**	**E**	**1**	**16**	**0.14**	**43**	**E**	**1**
SBR	16	0.02	10	B	0	16	0.03	11	B	0	111	0.19	13	B	1
Weekday PM Peak															
EBL	27	0.05	13	B	0	27	0.06	14	B	0	23	0.06	15	B	0
SBL	**26**	**0.62**	**182**	**F**	**2**	**26**	**0.72**	**233**	**F**	**3**	**22**	**0.82**	**322**	**F**	**3**
SBR	34	0.09	16	C	0	34	0.10	17	C	0	85	0.28	21	C	1

During the AM peak hour, both southbound movements generally operate well. During the PM peak hour, under both existing and future conditions, the southbound left movement operates with some constraints. The heavy east-west volumes on Northfield Drive West limit the opportunity to complete this movement, however the movement operates with ample capacity. The southbound right movement does not operate with any constraints.

6.5.5 Kumpf Drive/Private Driveway and Northfield Drive West

The intersection capacity analysis at Kumpf Drive/Private Driveway and Northfield Drive West is summarized in Table 6-50.

Table 6-50: Kumpf Drive/Private Driveway and Northfield Drive West Capacity Analysis

Mvmt	Existing					Future Background 2041					Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue	Vol	V/C	Delay (s)	LOS	95th Queue	Vol	V/C	Delay (s)	LOS	95th Queue
AM Peak Hour															
NBR	17	0.05	16	6	0	17	0.05	17	C	0	17	0.06	18	C	0
SBR	33	0.08	15	B	0	33	0.10	17	C	0	33	0.11	19	C	0
PM Peak Hour															
NBR	43	0.14	19	C	1	43	0.15	19	C	1	43	0.16	21	C	1
SBR	45	0.19	24	C	1	45	0.20	25	C	1	45	0.28	36	E	1

The intersection operates with good levels of service under existing and future conditions.

6.5.6 Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway

The intersection capacity analysis at Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway is summarized in Table 6-51.

Table 6-51: Parkside Drive and Buildings A-E Driveway/Buildings E-H Driveway Capacity Analysis

Mvmt	Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLR	253	0.26	10	A	1
WBLR	443	0.51	13	B	3
Weekday PM Peak					
EBLR	181	0.21	10	B	1
WBLR	231	0.34	13	B	2

The intersection operates with good levels of service under future conditions.

6.5.7 Parkside Drive and Nordia Loading Driveway

The intersection capacity analysis at Parkside Drive and Nordia Loading Driveway is summarized in Table 6-52.

Table 6-52: Parkside Drive and Nordia Loading Driveway Capacity Analysis

Mvmt	Existing					Future Background 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak										
EBLR	2	0.00	10	A	0	2	0.00	10	A	0
NBL	1	0.00	8.3	A	0	1	0.00	8	A	0
Weekday PM Peak										
EBLR	2	0.00	10	B	0	2	0.00	10	B	0
NBL	1	0.00	9	A	0	1	0.00	9	A	0

The intersection operates with good levels of service under existing and future conditions. Under future total conditions, the driveway is removed.

6.5.8 Parkside Drive and Building I South-East Driveway/Building J South-West Driveway

The intersection capacity analysis at Parkside Drive and Building I South-East Driveway/Building J South-West Driveway is summarized in Table 6-53.

Table 6-53: Parkside Drive and Building I South-East Driveway/Building J South-West Driveway Capacity Analysis

Mvmt	Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLTR	9	0.01	9	A	0
WBLTR	8	0.02	14	B	0
NBL	11	0.01	7	A	0
Weekday PM Peak					
EBLTR	25	0.03	9	A	0
WBLTR	40	0.09	14	B	0
NBL	26	0.02	8	A	0

The intersection operates with good levels of service under future conditions.

6.5.9 Parkside Drive/Parkside Drive Extension and Future East-West Road

The intersection capacity analysis at Parkside Drive/Parkside Drive Extension and Future East-West Road is summarized in Table 6-54.

Table 6-54: Parkside Drive/Parkside Drive Extension and Future East-West Road Capacity Analysis

Mvmt	Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak					
EBLTR	57	0.07	8	A	0
WBLTR	2	0.00	8	A	0
NBLTR	527	0.62	14	B	4
SBLTR	4	0.01	8	A	0
Weekday PM Peak					
EBLTR	128	0.15	8	A	1
WBLTR	12	0.02	8	A	0
NBLTR	342	0.42	11	B	2
SBLTR	4	0.01	8	A	0

The intersection operates with good levels of service under future conditions.

6.5.10 Building K South-West Driveway/Building I North-West Driveway and Future East-West Road

The intersection capacity analysis at Building K South-West Driveway/Building I North-West Driveway and Future East-West Road is summarized in Table 6-55.

Table 6-55: Building K South-West Driveway/Building I North-West Driveway and Future East-West Road Capacity Analysis

Mvmt	Future Total 2031				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
Weekday AM Peak Hour					
EBL	1	0.00	8	A	0
NBLTR	1	0.00	13	B	0
SBLTR	1	0.00	13	B	0
Weekday PM Peak Hour					
EBL	0	0.00	0	A	0
NBLTR	5	0.01	12	B	0
SBLTR	5	0.01	12	B	0

The intersection operates with good levels of service under future conditions.

6.5.11 Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway

The intersection capacity analysis at Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway is summarized in Table 6-56.

Table 6-56: Parkside Drive Extension and Building K North-East Driveway/Building L North-West Driveway Capacity Analysis

Mvmt	Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
	Weekday AM Peak				
EBLTR	1	0.00	8	A	0
WBLTR	3	0.00	9	A	0
NBL	1	0.00	7	A	0
	Weekday PM Peak				
EBLTR	1	0.00	8	A	0
WBLTR	3	0.00	9	A	0
NBL	1	0.00	7	A	0

The intersection operates with good levels of service under future conditions.

6.5.12 Building L South-East Driveway/Building J North-East Driveway and Future East-West Road

The intersection capacity analysis at Building L South-East Driveway/Building J North-East Driveway and Future East-West Road is summarized in Table 6-57.

Table 6-57: Building L South-East Driveway/Building J North-East Driveway and Future East-West Road Capacity Analysis

Mvmt	Future Total 2041				
	Vol	V/C	Delay (s)	LOS	95th Queue (veh)
	Weekday AM Peak				
EBLR	11	0.01	7	A	0
NBLT	0	0.00	7	A	0
SBTR	2	0.00	6	A	0
	Weekday PM Peak				
EBLR	5	0.01	7	A	0
NBLT	2	0.00	7	A	0
SBTR	10	0.01	6	A	0

The intersection operates with good levels of service under future conditions.

6.6 ANALYSIS SUMMARY

The analysis results indicate that the proposed development is expected to have an acceptable impact on the road network operations in the surrounding area with the proposed signal timing plans. While there is congestion in the network, all new site accesses are expected to operate well with the addition of site traffic. Lastly, our analysis demonstrates that the queues experienced during the LRT crossing are not anticipated to extend past the Conestoga Parkway on-ramps. This indicates that the on-ramps can operate under free-flow conditions and the off-ramps will not be blocked by traffic along Northfield Drive West.

7 TRAFFIC OPERATIONS REVIEW

It is understood that the Region requested more information about the future intersection operations of the Parkside Drive/Parkside Drive Extension and Future East-West Road. As such, a signal warrant analysis and a roundabout capacity analysis was undertaken. Capacity results are detailed in Appendix H.

7.1 SIGNAL WARRANT REVIEW

A sensitivity analysis was undertaken during future conditions where the intersection of Parkside Drive/Parkside Drive Extension and Future East-West Road was signalized. Figure 7-1 shows the 2041 traffic volumes with the future East-West Road. The signalized intersection capacity analysis results are summarized in Table 7-1.

Figure 7-1: Proposed E-W Road

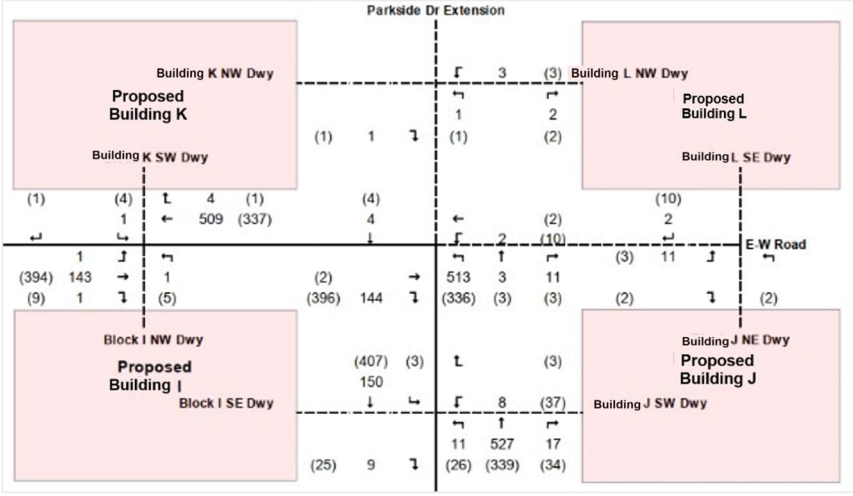


Table 7-1: Signalized Intersection Capacity Analysis - Parkside Drive/Parkside Drive Extension and Future East-West Road

AM Peak Hour	Future Total 2031				Future Total 2041			
	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
Overall	**-**	**0.46**	**9**	**A**	**-**	**0.46**	**9**	**A**
EBLTR	144	0.09	24	C	144	0.09	24	C
WBLTR	2	0.01	24	C	2	0.01	24	C
NBLTR	527	0.51	5	A	517	0.51	5	A
SBLTR	4	0.00	2	A	4	0.00	2	A
PM Peak Hour	**Future Total 2031**				**Future Total 2041**			
	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
Overall	**-**	**0.31**	**13**	**B**	**-**	**0.31**	**13**	**B**
EBLTR	128	0.08	37	D	128	0.08	38	D
WBLTR	12	0.07	23	C	12	0.07	23	C
NBLTR	342	0.35	4	A	342	0.35	4	A
SBLTR	4	0.00	2	A	4	0.00	2	A

Under future conditions, if the intersection were to be signalized, good levels of service with v/c ratios below 1.0 occur during each horizon.

A peak hour signal warrant calculation was conducted. The analysis was based on Ministry of Transportation (MTO Book 12) requirements for installation of traffic signal for now intersection. The analysis examines the combined AM & PM peak hours. Table 7-2 summarize the warrant review results.

Table 7-2: Signal Warrant Review

Warrant	Percent Compliant	Warrant Satisfied?
Warrant 1 – Minimum Vehicular Volume		
1A	28%	No
1B	12%	No
Warrant 2 – Delay to Cross Traffic		
2A	25%	No
2B	4%	No

Results indicate a traffic signal is not warranted under future total conditions for 2031 and 2041.

7.2 ROUNDABOUT CAPACITY ANALYSIS

A roundabout capacity analysis was conducted to determine if this means of traffic control is a viable option. Similar to the unsignalized and signalized analyses, each direction is served with one shared lane. Please note that the future traffic volumes are identical for 2031 and 2041 for both peak hours. The results are shown below in Table 7-3 and Table 7-4, for 2031 and 2041, respectively.

Table 7-3: 2031 Future Total Roundabout Capacity Analysis Results

Leg	Weekday AM Peak Hour							
	Queue (Passenger Car Equivalent)	95% Queue (Passenger Car Equivalent)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Westbound	0.00	~1	0.00	0.00	A	5.55	A	109% (Northbound Leg)
Southbound	0.01	400.0	7.65	0.00	A			
Eastbound	0.05	~1	3.26	0.05	A			
Northbound	0.84	~1	5.78	0.44	A			
Leg	**Weekday PM Peak Hour**							
	Queue (Passenger Car Equivalent)	95% Queue (Passenger Car Equivalent)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Westbound	0.01	~1	3.52	0.01	A	4.21	A	221% (Northbound Leg)
Southbound	0.01	400.00	7.03	0.00	A			
Eastbound	0.12	~1	3.40	0.11	A			
Northbound	0.43	~1	4.51	0.28	A			

Table 7-4: 2041 Future Total Roundabout Capacity Analysis Results

Leg	Weekday AM Peak Hour							
	Queue (Passenger Car Equivalent)	95% Queue (Passenger Car Equivalent)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Westbound	0.00	~1	0.00	0.00	A	5.55	A	109% (Northbound Leg)
Southbound	0.01	400.0	7.65	0.00	A			
Eastbound	0.05	~1	3.26	0.05	A			
Northbound	0.84	~1	5.78	0.44	A			
Leg	**Weekday PM Peak Hour**							
	Queue (Passenger Car Equivalent)	95% Queue (Passenger Car Equivalent)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Westbound	0.01	~1	3.56	0.02	A	4.20	A	221% (Northbound Leg)
Southbound	0.01	400.00	7.03	0.00	A			
Eastbound	0.12	~1	3.40	0.11	A			
Northbound	0.43	~1	4.51	0.28	A			

Under future total weekday AM and PM peak hour conditions, the Parkside Dr/Parkside Dr Ext & Future E-W Road roundabout is expected to operate without any issues.

Due to limitations with the ARCADY Lite software, the mean 95th percentile queue value cannot be reliably calculated and displays an unrealistic value. The future total AM Southbound and PM Eastbound values have a low v/c ratio, delay and LOS of "A". This provides evidence that this movement operates well and 95th percentile queues are minimal.

7.3 TRAFFIC OPERATIONS CONCLUSION

Based on the results, the unsignalized operations of the Parkside Drive/Parkside Drive Extension and Future E-W Road intersection is sufficient. Other traffic controls means are not necessary as the operation is expected to operate well.

8 PARKING ASSESSMENT

This section reviews the parking standards for the subject development based on the zoning by-law requirements applicable to the subject site. This will include a review of required bicycle, vehicle parking, and accessible parking.

8.1 BICYCLE PARKING REVIEW

The bicycle parking provisions of the proposed development have been assessed according to the standards set out by the City of Waterloo Zoning By-law 2018-050. Of note, according to the Zoning By-law, for the calculation of required parking, fractions shall be rounded up to the nearest whole number.

The required bicycle parking rates and provisions are summarized in Table 8-1.

Table 8-1: Zoning By-law Bicycle Parking Requirements

Land Use	Unit Count/ GFA	Type of Space	ZBL 2018-050		Proposed Supply
			Required Rate	Required Bicycle Parking	
Residential	4,267 Units	Type 'A' (Long-Term)	0.3 spaces/unit	1,281	1,442
		Type 'B' (Short-Term)		1,281	1,331
Retail(1)	360 m^2	Type 'A' (Long-Term) or Type 'B' (Short-Term)	40% of required vehicle spaces	2	-
Commercial	2,714 m^2	Type 'A' (Long-Term)	40% of required spaces (50% Type A)	21	-
		Type 'B' (Short-Term)	40% of required spaces (50% Type B)	21	-
Industrial	4,856 m^2	Type 'A' (Long-Term)	40% of required spaces (50% Type A)	47	-
		Type 'B' (Short-Term)	40% of required spaces (50% Type B)	47	-
			Total	**2,700**	**2,773**

Note: (1) According to ZBL 2018-050 Section 6.6.2.c.i. For non-residential uses, bicycle parking spaces shall be provided at a minimum rate of 40% of the required motor vehicle parking spaces. The requirement may be satisfied as Type A or Type B.

Based on the City of Waterloo Zoning By-law 2018-050, a total of 2,700 bicycle parking spaces are required for the proposed development. In total, 2,773 bicycle parking spaces are provided, satisfying the by-law requirements.

The location of the bicycle parking will be refined through future iterations of the site plan to ensure bicycle parking spaces are located in convenient locations for commercial and industrial land uses.

8.2 VEHICLE PARKING REVIEW

The vehicle parking provisions of the proposed development have been assessed according to the standards set out by the City of Waterloo Zoning By-law 2018-050. Of note, according to the Zoning By-law, for the calculation of required parking, fractions shall be rounded up to the nearest whole number.

The required vehicle parking rates and provisions are summarized in Table 8-2.

Table 8-2: Zoning By-law Vehicle Parking Requirements

Land Use	Unit Count/ GFA	City of Waterloo ZBL 2018-050				Proposed Supply
		Min Parking Rate	Max Parking Rate	Min. Required Spaces	Max. Permitted Spaces	
Residential	4,267 Units	0.65 spaces/ unit	1.5 spaces/unit	2,774	6,401	4,698
Visitor		0.10 spaces/ unit	0.15 spaces/unit	427	641	
Retail	360 m^2	1.5 spaces/ 100m^2	3 spaces/ 100m^2	6	11	
Commercial	6,605 m^2	1.5 spaces/ 100m^2	3 spaces/ 100m^2	100	199	215
Industrial	15,316 m^2	1.5 spaces/ 100m^2	3 spaces/ 100m^2	230	460	226
			Total	**3,537**	**7,712**	**5,139**

In total, a minimum of 3,537 parking spaces are required and a maximum of 7,712 parking spaces are permitted for the proposed development. The proposed parking supply consists of 5,139 parking spaces, which satisfies the by-law requirements.

8.3 ACCESSIBLE PARKING REVIEW

The accessible parking vehicle requirements based on Zoning By-law 2018-050 were reviewed. The required accessible parking rates and provisions are summarized in Table 8-3.

Table 8-3: Zoning By-law 2018-050 Accessible Parking Requirements

Land Use	Min. Parking Required	City of Waterloo ZBL 2018-050 - Accessible Parking Requirements		
		Accessible Parking Rate		Accessible Parking Required
Residential	3,201	1,001+ spaces	11 plus 1% of total number of parking spaces	43
Retail	6	1-25 spaces		1 Type ‘A’
Commercial	100	76-100 spaces		2 Type 'A' and 2 Type 'B'
Industrial	230	167-250 spaces		3 Type ‘A’ and 4 Type ‘B’
			Total	**55 spaces**

Based on the Zoning By-law, the proposed development is required to provide 55 accessible spaces. The supply and location of accessible vehicle parking spaces will be refined through future iterations of the site plan.

9 LOADING AND SITE CIRCULATION ASSESSMENT

9.1 LOADING REQUIREMENTS

The loading provisions of the proposed development have been assessed according to the standards set out by the City of Waterloo Zoning By-law 2018-050.

The required loading rates and provisions are summarized in Table 9-1.

Table 9-1: Zoning By-law Loading Requirements

Building	Bedroom Count/ BFA	City of Waterloo ZBL 2018-050	
		Loading Rate	Loading Space Required
A	358 Bedrooms	76 to 900 bedrooms	1 Type A
B	924 Bedrooms	900 or more bedrooms	2 Type A
C	622 Bedrooms	76 to 900 bedrooms	1 Type A
D	599 Bedrooms	76 to 900 bedrooms	1 Type B(1)
	360 m^2	250 m^2 – 2500 m^2	
E	341 Bedrooms	76 to 900 bedrooms	1 Type A
F	612 Bedrooms	76 to 900 bedrooms	1 Type A
G	533 Bedrooms	76 to 900 bedrooms	1 Type A
H	278 Bedrooms	76 to 900 bedrooms	1 Type A
I	2,714 m^2	2,501 m^2 – 4,000 m^2	2 Type B
J	3,891 m^2	2,501 – 4,000 m^2	2 Type B
K	4,856 m^2	4,001 m^2 – 10,000 m^2	2 Type B & 1 Type C
L	10,460 m^2	10,001 m^2 or more	2 Type B & 2 Type C
		Total	**8 Type A, 9 Type B + 3 Type C**

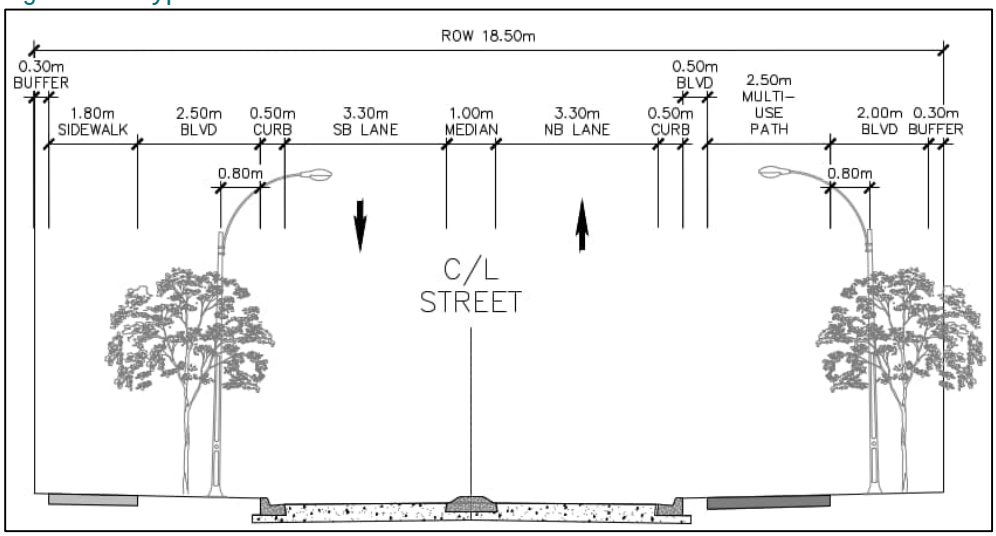
Note: (1) According to ZBL 2018-050 Section 6.9.5.3. For buildings containing both residential and non-residential uses, the provision of a non-residential loading space shall be deemed to satisfy the requirement for a residential loading space provided the loading space is accessible to both the non-residential and residential uses.

According to Zoning By-law 2018-050, the proposed development is required to provide 8 Type "A" loading spaces, 9 Type "B" loading spaces, and 3 Type "C" loading spaces. The loading supply for the proposed development will be refined through future iteration of the site plan.

9.2 SITE DESIGN

The new north/south road extending north from Parkside Drive was proposed based on the City of Waterloo Engineering & Landscape Manual Standard CW-201. An 18.50 m ROW is proposed, as illustrated in Figure 9-1.

Figure 9-1: Typical Cross-Section - Internal Public Road



A median was introduced at the Internal Public Road and the new E/W Public Road to allow for right-in/right-out movements only for the E/W Public Road. The median was designed to restrict vehicle movements while still providing fire route access.

10 TRANSPORTATION DEMAND MANAGEMENT PLAN

Transportation Demand Management (TDM) is a set of strategies that strive towards a more efficient transportation network by influencing travel behaviour. Effective TDM measures can reduce vehicle usage and encourage residents to engage in more sustainable methods of travel. There are various opportunities to incorporate TDM measures that support alternative modes of transportation. The recommendations should enhance non-single occupant auto vehicle trips for future residents of the subject development.

The TDM Plan should influence how, when, where, and why trips will be made to and from the site. To demonstrate that the proposed development is transit-supportive, an acceptable TDM Plan for new non-residential and mixed-use developments in the Urban Growth Centres, Major Transit Station Areas and Reurbanization Corridors of Cambridge, Kitchener and Waterloo will include a completed TDM Checklist.

The Region of Waterloo TDM Checklist outlines initiatives that are organized into four (4) different categories:

1. Site Access: In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities should encourage walking and cycling.
2. Public Transportation Access: The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents.
3. Parking: Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing the parking supply to match expected demand can have a positive influence on the selection of alternative travel modes.
4. Trip Reduction Incentives: A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel.

In addition to the active transportation and transit routes in the area, there are several opportunities to incorporate TDM measures into the proposed development that support alternative modes of transportation. As per the Region of Waterloo TDM Implementation Checklist, a minimum of 24 points are required for the development to be TDM supportive.

The following sections detail the recommendations and proposed TDM initiatives for the development proposal to meet the requirements. The full TDM Checklist is provided in Appendix I.

10.1 CATEGORY 1: SITE ACCESS

(A1) Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park, or plaza.

The primary residential building entrances are located facing the proposed public road and the non-residential entrances in Buildings I to L face the surface parking lots, which minimize travel distances to sidewalks and transit stops while maximizing visibility to encourage pedestrian activity. The pedestrian realm along Northfield Drive and the proposed public road will also provide a pleasant and safe experience through enhanced landscaping and adequate lighting.

TDM Checklist Score: The provision of this TDM measure awards a score of 2.

(A2) External to the site: continuous sidewalks (consistent with AODA Accessible Built Environment Standard) are provided along both sides of all adjacent public streets (over and above requirement).

Internal to the site: Pedestrian walkways (consistent with AODA Accessible Built Environment Standard e.g. 1.8 m min. width) are provided through large parking areas to link the building with the public street sidewalk system.

The proposed site plan ensures safe, comfortable, and convenient connections to the external pedestrian network. Sidewalks are proposed along the internal site as part of the development proposal and are proposed to connect to existing sidewalks along Northfield Drive.

TDM Checklist Score: The provision of this TDM measure awards a score of 1.

(A5) Provision of active uses at-grade along street frontages (e.g. retail).

The inclusion of ground-floor retail in the same buildings as residential units in Building D provides a great opportunity for residents to walk to retail destinations that they may otherwise drive to. This retail space within the proposed development will also provide opportunities for nearby residents to walk to their destinations via Northfield Drive, or from nearby transit stops, which will ultimately further discourage automobile travel in the area.

TDM Checklist Score: The provision of this TDM measure awards a score of 2.

10.2 CATEGORY 2: PUBLIC TRANSPORTATION ACCESS

(B1) Bus shelters with seating are provided at the transit stop immediately adjacent to the development in consultation with Transportation Planning and the Region of Waterloo.

Currently, along Northfield Drive, there are some bus shelters with seating provided at the transit stops. Along Parkside Drive/the new proposed public road, it is recommended that with the construction of the development, the transit stops are designed with shelters and seating provided.

TDM Checklist Score: The provision of this TDM measure awards a score of 1.

(B3a) Located within 800 m of a Rapid Transit Station.

As mentioned, according to the Region of Waterloo Official Plan, developments located within a 600 to 800 metre radius of a rapid transit station are considered Major Transit Station Areas (MTSAs). As part of GRT Route 301 – ION Light Rail, the Northfield LRT Station is located approximately 240 m (or a 3-minute walk) south of the subject site, providing a convenient connection to the overall transit network. The LRT route operates with headways of approximately 15-minutes. The subject site's location provides convenient access for pedestrians and transit users.

TDM Checklist Score: The provision of this TDM measure awards a score of 5.

10.3 CATEGORY 3: PARKING

(C7) Parking is not located on major street frontage or between a road right of way and the building façade.

Based on the latest site plan, no parking is provided on any major street frontage or between a road right of way and the building façade. Parking for residential uses is provided in underground and above ground parking structures. Parking for commercial and industrial land uses is provided in a surface lot directly outside of each building.

TDM Checklist Score: Provision of this TDM measure awards a score of 3.

(C10) 75% of parking or more is located underground or in a structure.

The development proposes a total of 5,139 parking spaces, which exceeds the minimum by-law requirement. Of this supply, 4,698 spaces (or approximately 91% of spaces) are provided underground or in an above ground structure. This exceeds the TDM measure of providing 75% of parking underground or in a structure.

TDM Checklist Score: The provision of this TDM measure awards a score of 15.

10.4 CATEGORY: 4: TRIP REDUCTION INCENTIVES

(D4) The building owner/occupant agrees to charge for parking as an unbundled cost to occupants.

Selling or leasing parking spaces separately from the sale of each residential unit can lead to lower rates of vehicle ownership and can be used as a selling feature in an area well-served by transit and/or cycling infrastructure. It is recommended that the proposed development unbundle the cost of parking from new dwelling units to support zero-car households and reduce parking demand from the proposed development.

TDM Checklist Score: The provision of this TDM measure awards a score of 5.

(D6) The building owner/occupant has prepared a TDM plan to the satisfaction of the Region of Waterloo and the Area municipality that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics.

A requirement of the TDM Plan is to identify and evaluate the effects of the measures proposed. These measures may reduce trip generation, reduce the proportion of trips in the peak hour, and increase the modal share of trips by walking, cycling, and transit, and/or increase auto occupancy. The effects should be calculated as adjustments to the basic travel demand estimates. A TDM plan has been prepared and will achieve a reduction of 22% (as seen in Appendix I).

TDM Checklist Score: The provision of this TDM measure awards a score of 10.

(D10) The development includes mixed uses (i.e. retail, commercial or food services, daycare, or other complementary uses) on-site or located within 400 metres.

The inclusion of ground-floor retail in the same building as residential units (within Building D), provides a great opportunity for residents to walk to retail destinations that they may otherwise drive to. This retail space within the proposed development will also provide opportunities for nearby local residents to walk to the destinations via the Northfield Drive West sidewalk network, or from nearby transit stops, which will ultimately further discourage automobile travel in the area.

TDM Checklist Score: The provision of this TDM measure awards a score of 2.

10.5 IMPACT OF TDM MEASURES

The proposed TDM measures are expected to further reduce the site's SOV trips by increasing the convenience and attractiveness of taking transit, walking, or cycling to/from the subject site. A summary of the abovementioned TDM measures that are reflected in the development proposal has been prepared in the form of a TDM Checklist based on the Region of Waterloo's Guidelines. Table 10-1 summarizes the proposed strategies and the overall expected auto trip reductions.

Table 10-1: TDM Summary and Estimated Impacts

TDM Initiative		Category Maximum	TDM Score
Category 1: Site Access			
(A1)	Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park, or plaza.	10	2
(A2)	External to the site: continuous sidewalks (consistent with AODA Accessible Built Environment Standard) are provided along both sides of all adjacent public streets (over and above requirement). Internal to the site: Pedestrian walkways (consistent with AODA Accessible Built Environment Standard e.g. 1.8 m min. width) are provided through large parking areas to link the building with the public street sidewalk system.		1
(A5)	Provision of active uses at-grade along street frontages (e.g. retail).		2
	Category 1 Total	**10**	**5**
Category 2: Public Transportation Access			
(B1)	Bus shelters with seating are provided at the transit stop immediately adjacent to the development in consultation with Transportation Planning and the Region of Waterloo.	5	1
(B3a)	Located within 800 m of a Rapid Transit Station.		5
	Category 2 Total	**5**	**6**
Category 3: Parking			
(C7)	Parking is not located on major street frontage or between a road right of way and the building façade.	25	3
(C10)	75% of parking or more is located underground or in a structure.		15
	Category 3 Total	**25**	**18**
Category 4: Trip Reduction Incentives			
(D4)	The building owner/occupant agrees to charge for parking as an unbundled cost to occupants.	25	5
(D6)	The building owner/occupant has prepared a TDM plan to the satisfaction of the Region of Waterloo and the Area municipality that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics.		10
(D10)	The development includes mixed uses (i.e. retail, commercial or food services, daycare, or other complementary uses) on-site or located within 400 metres.		2
	Trip Reduction Incentives Total	**25**	**17**
	Overall Total	**65**	**45**

The combination of these TDM strategies listed above is expected to reduce the auto-dependency of residents and visitors to, from, and within the subject development and encourage more sustainable travel habits. Overall, the development receives a total of 45 points, which indicates that the development is TDM Supportive according to the Region of Waterloo TDM Implementation Checklist. Of note, for certain categories, there are upper maximum limits for points achievable.

Additionally, it is anticipated that these measures will contribute to a 15% single-occupancy vehicle reduction for the subject development. Based on the subject development's location within an MTSA and within walking distance of the Northfield ION LRT Station, as well as dedicated on-street cycling and pedestrian facilities, the proposed TDM measures are considered to be appropriate for a development of this size and will support leveraging the available multi-modal transportation network.

11 CONCLUSIONS AND RECOMMENDATIONS

- The development proposal consists of 12 building with a total of 4,267 residential units and approximately 22,280 m^2 of non-residential GFA. A total of 5,139 vehicle parking spaces are proposed. Access to the development is proposed via Northfield Drive West along the south frontage and via Parkside Drive by way of Weber Street North or Northfield Drive West.
- According to both the Region of Waterloo and City of Waterloo Official Plans, developments located within a 600 to 800 metre radius of a rapid transit station are considered Major Transit Station Areas (MTSAs). MTSAs are planned and developed to achieve increased densities that support and ensure the viability of existing and planned rapid transit service levels and include a mix of residential, office, institutional and commercial development.
- The subject site is well served by existing transit services along Northfield Drive West and the surrounding road and transit network provided by Grand River Transit (GRT). Bus stops are located at the intersection of Northfield Drive West and Parkside Road, which is immediately adjacent to the subject site. In addition, the site is within an MTSA for the Northfield LRT Station, which is located approximately 240 m (or a 3-minute walk) south of the subject site, providing a convenient connection to the overall transit network.
- As the existing uses on-site will be replaced, the net site trip generation was calculated. The proposed development is anticipated to generate an additional 993 two-way auto trips (223 inbound, 770 outbound) during the AM peak hour and 1,215 two-way auto trips (721 inbound, 494 outbound) during the PM peak hour.
- The intersection capacity analysis findings indicate that the proposed development will have an acceptable impact on the surrounding road network. All site accesses are anticipated to operate well. With the optimization of the signal timing plan in the future conditions, minimal changes in operations with the addition of the site traffic in future total conditions was observed and no constraints were identified. It is recommended that signage be provided at Northfield Drive West at Parkside Drive to discourage vehicles from blocking the intersection. Signalization is recommended for the intersection of Weber Street North and Parkside Drive. Additionally, a median has been proposed along Parkside Drive, north of Northfield Drive West.
- The proposed bicycle and vehicle parking supply meet the requirements overall. It is anticipated that these will be further refined through future iterations of the site plan.
- The proposed development is considered TDM Supportive according to the Region of Waterloo Implementation Checklist. It is anticipated that these measures will contribute to a 15% single-occupancy vehicle reduction for the subject development. Based on the subject development's location within an MTSA and within walking distance of the Northfield ION LRT Station, as well as dedicated on-street cycling and pedestrian facilities, the proposed TDM measures are considered to be appropriate for a development of this size and will support leveraging the available multi-modal transportation network.



APPENDIX A

Terms of Reference

Appendix 1: City of Waterloo PRE-STUDY CONFERENCE FORM

Item	Description	Details
ISSUES		
1	List any issues expected that may impact the content or recommendations of the subject Transportation Impact Study.	o Intersection of Northfield and Weber is o currently under construction o o
INTRODUCTION		
2	Nature of application (Attach a drawing)	☒ Official Plan Amendment ☒ Zoning Amendment o Site Plan Control Application o Plan of Subdivision o Community Plan o Other
3	TIS process, and relevant policies, procedures and approvals	☒ Guidelines for the preparation of Transportation Impact Studies in Support of Development Applications ☒ Transportation Impact Studies Requirements for Capacity Analysis, Roundabouts, Turn Lanes ☒ Safety Analysis Checklist ☒ Policy and Procedures for Access onto Regional Roads
4	Public Meeting	☒ Required o Not Required
CONTEXT		
5	Study intersections (Intersections to be analyzed) Note: the consultant is responsible to identify any further intersections impacted as the study progresses.	o Northfield Dr W at Weber St N o Northfield Dr W at Access 1 o Northfield Dr W at Parkside Dr o Northfield Dr W at Kumpf Dr o Northfield Dr W at SB Off Ramp o Northfield Dr W at NB Off Ramp o Weber St N at Parkside Dr
6	Size and number of phases of development	☒ Phase 1: TBC ☒ Phase 2: TBC o Phase 3: o Phase 4: o Phase 5:
7	Approved and pending approval development applications	o 562-565 Conestogo Road, Waterloo o o
8	Planned transportation system improvements	o bike lanes proposed along various roads o in study area o
TRAVEL DEMAND		
9	Horizon years	o 5 years from date of TIS o 5 years after full occupancy ☒ Transportation Plan horizon for large scale projects o Interim years o Other…

Item	Description	Details
10	Peak hour determination	☒ AM weekday peak hour of adjacent roadway ☒ PM weekday peak hour of adjacent roadway o Saturday peak of adjacent roadway o AM weekday peak hour of development o PM weekday peak hour of development o Saturday peak of development o Other…
11	Background	o Historical traffic/transit counts ☒ ROW travel demand forecasts o Approved and pending approval development applications o Other…
12	Trip generation	☒ ITE average rates o ITE fitted equation o Rates published elsewhere o Observed rates for similar areas o Observed rates for similar developments in the local area o Other…
13	Trip reductions (TDM, internal, pass-by)	o Transportation Demand Management Checklist o Published Travel Demand Management reductions o Observed Travel Demand Management reductions ☒ ITE internal capture reductions for mixed-use developments o Observed internal capture reductions for mixed-use developments ☒ ITE pass-by reductions o Observed pass-by reductions for similar developments ☒ Other…
14	Trip distribution	☒ ITE trip distribution IN/OUT split o Regional travel demand o Population and employment distribution o Market analysis of catchment area o Other…
15	Trip assignment	☒ Local traffic pattern ☒ Site layout and access design o Existing turning movements o Other…
EVALUATION OF IMPACTS		
16	Traffic impact analysis (Use approved software)	☒ Unsignalized intersections ☒ left turn warrant analysis ☒ signal warrant analysis ☒ Signalized intersections ☒ LOS, v/c, delay, queuing o ROW saturation flow rates ☒ Existing signal timings for existing conditions ☒ Optimize signal timings for future conditions ☒ Use existing cycle length to respect coordinated corridor o Queuing analysis o Roundabouts o Other…

Item	Description	Details
17	Roundabout feasibility (Use approved software)	o Initial screening o Intersection control study (10 year horizon)
18	Transit assessment	☒ Frequency and hours of service ☒ Presence of bus stops o Reliability of service o Passenger loads ☒ Travel time o Other
19	Pedestrian assessment	☒ Presence, connectivity, and width of sidewalks ☒ Barriers and buffers from traffic ☒ Crossing opportunities at intersections ☒ Delay at intersections ☒ Number of driveways and traffic volumes at the driveways ☒ Presence of illumination ☒ Future needs (desire lines / policy / accessibility / demand) o Other
20	Cycling assessment	☒ Presence of a dedicated facility ☒ Network connectivity ☒ Number and width of travel lanes adjacent to the route ☒ Volume and speed of traffic ☒ Percentage of trucks and buses encountered o Pavement condition ☒ Presence of parking /showers/change rooms ☒ Future needs (desire lines / policy / demand) o Other
21	Safety analysis	o Road safety review ☒ Collision risk analysis ☒ Access conflict evaluation
22	Site access and circulation	☒ Review sight distances at all new access points ☒ Internal traffic controls ☒ Loading facilities and access ☒ Service/maintenance vehicle access ☒ Emergency vehicle access
23	Submission format	o Three hard copies of main report including appendices (other than analysis results/output e.g. Synchro reports) o Minimum one original hard copy must be sealed by a professional engineer ☒ Electronic copy of complete report and all appendices ☒ Electronic copy of operational analysis files (e.g. Synchro, Arcady ☒ Electronic copy of all signal warrant calculation files o Other

APPENDIX B

Traffic Data & Signal Timing Plans

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Morning Peak Diagram

Count Period
From: 7:30 AM
To: 10:30 AM

Peak Hour
From: 8:00 AM
To: 9:00 AM

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Leg Total:	122
North Entering:	56
North Peds:	6
Peds Cross:	⋈

% Trks	0%	20%	4%	
Heavys	0	2	2	4
Trucks	0	0	0	0
Cars	1	8	43	52
Total	1	10	45	

Heavys	Trucks	Cars	Total
17	12	599	628

Heavys	Trucks	Cars	Total
10	0	56	66

East Leg Total:	2,369
East Entering:	1,060
East Peds:	3
Peds Cross:	⋈

Parkside Dr

Total	Cars	Trucks	Heavys	% Trks
56	49	0	7	13%
611	582	12	17	5%
393	387	2	4	2%
	1,018	14	28	

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Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	2	2
5%	35	14	1,000	1,049
8%	0	2	22	24
	35	16	1,024	

Northfield Dr

Cars	Trucks	Heavys	Total
1,253	16	40	1,309

Parkside Dr

Peds Cross:	⧖
West Peds:	10
West Entering:	1,075
West leg Total:	1,703

Heavys	6
Trucks	4
Cars	417
Total	427

Total	16	8	215	
Cars	16	5	210	231
Trucks	0	0	2	2
Heavys	0	3	3	6
% Trks	0%	38%	2%	

Peds Cross:	⋈
South Peds:	18
South Entering:	239
South leg Total:	666

Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,430**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **1,075**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Mid-day Peak Diagram

Count Period
From: 12:00 PM
To: 2:00 PM

Peak Hour
From: 12:00 PM
To: 1:00 PM

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Leg Total: 180
North Entering: 90
North Peds: 12
Peds Cross: ⋈

% Trks	50%	10%	5%	
Heavys	0	2	1	3
Trucks	1	1	2	4
Cars	1	27	55	83
Total	2	30	58	

Heavys	Trucks	Cars	Total
21	8	699	728

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	3	3
6%	27	14	652	693
13%	2	2	27	31
	29	16	682	

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Heavys	5
Trucks	4
Cars	81
Total	90

East Leg Total: 1,998
East Entering: 991
East Peds: 8
Peds Cross: ⧖

Parkside Dr

Total	Cars	Trucks	Heavys	% Trks
61	57	3	1	7%
702	675	6	21	4%
228	217	2	9	5%
	949	11	31	

Northfield Dr

Cars	Trucks	Heavys	Total
951	22	34	1007

Parkside Dr

Total	24	26	256	
Cars	23	21	244	288
Trucks	1	1	6	8
Heavys	0	4	6	10
% Trks	4%	19%	5%	

Peds Cross: ⧖
West Peds: 7
West Entering: 727
West leg Total: 1,455

Heavys	13
Trucks	5
Cars	271
Total	289

Peds Cross: ⋈
South Peds: 16
South Entering: 306
South leg Total: 595

Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,114**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **727**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Afternoon Peak Diagram

Count Period
From: 3:00 PM
To: 6:00 PM

Peak Hour
From: 4:30 PM
To: 5:30 PM

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Leg Total: 220
North Entering: 119
North Peds: 9
Peds Cross: ⋈

% Trks	0%	7%	1%	
Heavys	0	2	0	2
Trucks	0	0	1	1
Cars	3	26	87	116
Total	3	28	88	

Heavys	Trucks	Cars	Total
12	6	1,341	1,359

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
3%	12	14	876	902
0%	0	0	30	30
	12	14	906	

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Heavys	6
Trucks	1
Cars	94
Total	101

East Leg Total: 3,084
East Entering: 1,698
East Peds: 11
Peds Cross: ⋈

Parkside Dr

Total	Cars	Trucks	Heavys	% Trks
86	83	1	2	3%
1,324	1,307	5	12	1%
288	284	2	2	1%
	1,674	8	16	

Northfield Dr

Cars	Trucks	Heavys	Total
1,357	17	12	1,386

Parkside Dr

Total	32	15	396
Cars	31	11	394	436
Trucks	1	0	2	3
Heavys	0	4	0	4
% Trks	3%	27%	1%	

Peds Cross: ⧖
West Peds: 2
West Entering: 932
West leg Total: 2,291

Heavys	4
Trucks	2
Cars	340
Total	346

Peds Cross: ⋈
South Peds: 25
South Entering: 443
South leg Total: 789

Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **3,192**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **932**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Total Count Diagram

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Leg Total:	1,214
North Entering:	602
North Peds:	71
Peds Cross:	⋈
Bicycles Entering:	7
Buggies Entering:	0

% Trks	14%	11%	4%	
Heavys	1	16	8	25
Trucks	1	1	8	10
Cars	12	137	418	567
Total	14	154	434	

Heavys	Trucks	Cars	Total	
128	70	6,360	6,558	

Heavys	53			
Trucks	11			
Cars	548			
Total	612			

East Leg Total:	18,117
East Entering:	9,021
East Peds:	54
Peds Cross:	⧖
Bicycles Entering:	24
Buggies Entering:	0

Parkside Dr

Total	Cars	Trucks	Heavys	% Trks
461	433	8	20	6%
6,339	6,146	66	127	3%
2,221	2,150	26	45	3%
	8,729	100	192	

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Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	14	14
4%	177	105	6,196	6,478
4%	3	7	216	226
	180	112	6,426	

Northfield Dr

Cars	Trucks	Heavys	Total
8,748	143	205	9,096

Parkside Dr

Total	205	137	2,184	
Cars	202	101	2,134	2,437
Trucks	3	3	30	36
Heavys	0	33	20	53
% Trks	1%	26%	2%	

Peds Cross:	⧖
West Peds:	46
West Entering:	6,718
West leg Total:	13,276
Bicycles Entering:	16
Buggies Entering:	0

Heavys	64
Trucks	34
Cars	2,503
Total	2,601

Peds Cross:	⋈
South Peds:	131
South Entering:	2,526
South leg Total:	5,127
Bicycles Entering:	27
Buggies Entering:	0

Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **18,867**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **6,718**

Notes: None

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Leg Total: 2,112
North Entering: 1,047
North Peds: N/A
Peds Cross: ⋈

% Trks	14%	11%	4%	
Heavys	2	28	14	44
Trucks	2	2	14	17
Cars	21	238	727	987
Total	24	268	755	

Heavys	Trucks	Cars	Total
223	122	11,066	11,411

Parkside Dr

Heavys	Trucks	Cars	Total
92	19	954	1065

East Leg Total: 31,524
East Entering: 15,697
East Peds: N/A
Peds Cross: ⧖

Total	Cars	Trucks	Heavys	% Trks
802	753	14	35	6%
11,030	10,694	115	221	3%
3,865	3,741	45	78	3%
	15,188	174	334	

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	24	24
4%	308	183	10,781	11,272
4%	5	12	376	393
	313	195	11,181	

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Northfield Dr

Cars	Trucks	Heavys	Total
15,222	249	357	15,827

Parkside Dr

Total	357	238	3,800	
Cars	351	176	3,713	4,240
Trucks	5	5	52	63
Heavys	0	57	35	92
% Trks	1%	26%	2%	

Peds Cross: ⧖
West Peds: N/A
West Entering: 11,689
West leg Total: 23,100

Heavys	111
Trucks	59
Cars	4,355
Total	4,526

Peds Cross: ⋈
South Peds: N/A
South Entering: 4,395
South leg Total: 8,921

Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***32,829***

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Peak Hour Factor By Movement

Municipality: Waterloo
Intersection: Northfield Dr @ Parkside Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 692
Count Date: Tuesday, 25-Oct-22

North Approach PHF

AM Peak:	0.74
Mid-day Peak:	0.73
PM Peak:	0.74

	Movement		
PM	0.25	0.64	0.85
MID	0.50	0.68	0.73
AM	0.25	0.42	0.80

East Approach PHF

AM Peak:	0.87
Mid-day Peak:	0.95
PM Peak:	0.94

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

Parkside Dr

Northfield Dr

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AM	MID	PM	
0.74	0.85	0.77	
0.87	0.93	0.91	
0.91	0.89	0.97	Movement

Northfield Dr

Movement	PM	MID	AM
	0.00	0.75	0.25
	0.92	0.95	0.91
	0.75	0.70	0.67

Parkside Dr

Parkside Dr

0.80	0.67	0.81	AM
0.86	0.81	0.89	MID
0.57	0.75	0.94	PM
	Movement		

West Approach PHF

AM Peak:	0.90
Mid-day Peak:	0.93
PM Peak:	0.92

South Approach PHF

AM Peak:	0.82
Mid-day Peak:	0.91
PM Peak:	0.89

Comments

Intersection: Northfield Dr @ Parkside Dr
GeoID: 692
Municipality: Waterloo
Major Road: Northfield Dr

Intersection Control: Signalized
Date: Tuesday, 25-Oct-22
Name: Cam
Weather: Cloudy/Dry

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			TOTAL	TOTAL HOUR
Approach Control	***Signalized***			***Signalized***			***Signalized***			***Signalized***				
7:30 to 7:45	0	221	3	47	72	8	2	1	56	6	0	0	416	
7:45 to 8:00	0	243	8	46	87	8	4	5	62	9	4	0	476	
8:00 to 8:15	2	244	3	94	145	12	4	0	64	14	1	0	583	
8:15 to 8:30	0	268	4	90	150	7	4	3	66	7	1	1	601	2,076
8:30 to 8:45	0	249	8	101	140	18	3	3	42	11	2	0	577	2,237
8:45 to 9:00	0	288	9	108	176	19	5	2	43	13	6	0	669	2,430
9:00 to 9:15	1	166	5	113	164	9	8	3	45	5	4	0	523	2,370
9:15 to 9:30	0	200	9	82	125	9	5	3	41	11	7	0	492	2,261
9:30 to 9:45	0	168	6	66	123	9	1	5	37	8	1	0	424	2,108
9:45 to 10:00	0	175	7	67	147	13	5	3	36	9	2	1	465	1,904
10:00 to 10:15	0	146	7	59	137	6	3	3	46	8	4	0	419	1,800
10:15 to 10:30	0	173	7	54	123	9	4	4	52	7	2	0	435	1,743
AM Peak Hour														
8:00 to 9:00	**2**	**1,049**	**24**	**393**	**611**	**56**	**16**	**8**	**215**	**45**	**10**	**1**	**2,430**	
# of trucks in peak	0	14	2	2	12	0	0	0	2	0	0	0	32	
# of heavies in peak	0	35	0	4	17	7	0	3	3	2	2	0	73	
% heavies (Total)	0%	5%	8%	2%	5%	13%	0%	38%	2%	4%	20%	0%	4%	
12:00 to 12:15	1	183	11	55	180	14	7	7	64	13	4	1	540	
12:15 to 12:30	0	173	6	64	171	11	6	8	59	14	11	0	523	
12:30 to 12:45	1	163	8	53	163	18	5	7	72	11	5	0	506	
12:45 to 13:00	1	174	6	56	188	18	6	4	61	20	10	1	545	2,114
13:00 to 13:15	1	181	4	58	159	8	8	5	48	13	5	0	490	2,064
13:15 to 13:30	0	172	7	56	176	8	7	4	68	12	5	1	516	2,057
13:30 to 13:45	1	180	4	50	179	22	10	9	49	14	2	0	520	2,071
13:45 to 14:00	2	159	7	50	156	7	6	3	77	14	7	1	489	2,015
Midday Peak Hour														
12:00 to 13:00	**3**	**693**	**31**	**228**	**702**	**61**	**24**	**26**	**256**	**58**	**30**	**2**	**2,114**	
# of trucks in peak	0	14	2	2	6	3	1	1	6	2	1	1	39	
# of heavies in peak	0	27	2	9	21	1	0	4	6	1	2	0	73	
% heavies (Total)	0%	6%	13%	5%	4%	7%	4%	19%	5%	5%	10%	50%	5%	
15:00 to 15:15	0	200	7	62	206	10	7	3	69	14	3	0	581	
15:15 to 15:30	0	214	8	67	237	16	3	2	87	10	3	0	647	
15:30 to 15:45	0	194	13	69	253	25	8	3	89	21	7	2	684	
15:45 to 16:00	0	251	2	72	226	12	4	8	88	19	2	0	684	2,596
16:00 to 16:15	0	203	7	63	285	15	9	7	98	22	9	0	718	2,733
16:15 to 16:30	0	217	10	72	254	26	5	6	90	10	6	1	697	2,783
16:30 to 16:45	0	245	9	70	318	21	4	3	89	22	6	0	787	2,886
16:45 to 17:00	0	246	5	73	332	25	8	3	105	25	6	0	828	3,030
17:00 to 17:15	0	190	6	74	365	12	14	5	105	26	11	3	811	3,123
17:15 to 17:30	0	221	10	71	309	28	6	4	97	15	5	0	766	3,192
17:30 to 17:45	2	174	9	82	318	19	14	5	89	20	10	1	743	3,148
17:45 to 18:00	2	197	11	77	275	19	20	6	90	11	3	1	712	3,032
PM Peak Hour														
16:30 to 17:30	**0**	**902**	**30**	**288**	**1,324**	**86**	**32**	**15**	**396**	**88**	**28**	**3**	**3,192**	
# of trucks in peak	0	14	0	2	5	1	1	0	2	1	0	0	26	
# of heavies in peak	0	12	0	2	12	2	0	4	0	0	2	0	34	
% heavies (Total)	0%	3%	0%	1%	1%	3%	3%	27%	1%	1%	7%	0%	2%	

Intersection: Northfield Dr @ Parkside Dr
GeoID: 692
Municipality: Waterloo
Major Road: Northfield Dr

Intersection Control: Signalized
Date: Tuesday, 25-Oct-22
Name: Cam
Weather: Cloudy/Dry

PEDESTRIAN CROSSING								
Time			Crossing Approach					
			East App.	West App.	North App.	South App.	TOTAL	TOTAL HOUR
7:30	to	7:45	0	1	1	3	5	
7:45	to	8:00	1	2	3	11	17	
8:00	to	8:15	0	0	1	4	5	
8:15	to	8:30	0	1	3	2	6	33
8:30	to	8:45	2	5	1	7	15	43
8:45	to	9:00	1	4	1	5	11	37
9:00	to	9:15	0	2	1	2	5	37
9:15	to	9:30	1	2	1	3	7	38
9:30	to	9:45	0	1	2	3	6	29
9:45	to	10:00	1	2	2	1	6	24
10:00	to	10:15	1	1	2	3	7	26
10:15	to	10:30	0	1	0	5	6	25
AM Peak Hour							**96**	
8:00	**to**	**9:00**	**3**	**10**	**6**	**18**	**37**	
12:00	to	12:15	1	2	4	2	9	
12:15	to	12:30	4	1	0	2	7	
12:30	to	12:45	1	2	5	5	13	
12:45	to	13:00	2	2	3	7	14	43
13:00	to	13:15	5	2	6	5	18	52
13:15	to	13:30	1	1	0	4	6	51
13:30	to	13:45	2	0	1	2	5	43
13:45	to	14:00	2	0	1	0	3	32
Midday Peak Hour							**75**	
12:00	**to**	**13:00**	8	7	12	16	**43**	
15:00	to	15:15	2	1	4	3	10	
15:15	to	15:30	0	2	2	5	9	
15:30	to	15:45	1	2	1	4	8	
15:45	to	16:00	2	2	2	1	7	34
16:00	to	16:15	4	0	5	4	13	37
16:15	to	16:30	3	1	1	4	9	37
16:30	to	16:45	5	0	3	8	16	45
16:45	to	17:00	3	2	4	10	19	57
17:00	to	17:15	1	0	1	4	6	50
17:15	to	17:30	2	0	1	3	6	47
17:30	to	17:45	4	3	3	6	16	47
17:45	to	18:00	2	1	6	3	12	40
PM Peak Hour							**131**	
16:30	**to**	**17:30**	11	2	9	25	**47**	

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Morning Peak Diagram

Count Period
From: 7:30 AM
To: 10:30 AM

Peak Hour
From: 7:45 AM
To: 8:45 AM

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Partly Cloudy/Dry

Person(s) who counted: Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Leg Total: 842
North Entering: 469
North Peds: 3
Peds Cross: ⋈

% Trks	6%	3%	8%	
Heavys	1	6	11	18
Trucks	2	1	2	5
Cars	51	247	148	446
Total	54	254	161	

Heavys	Trucks	Cars	Total
8	24	462	494

Heavys	9
Trucks	4
Cars	360
Total	373

East Leg Total: 1,533
East Entering: 599
East Peds: 14
Peds Cross: ⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
122	117	3	2	4%
409	381	21	7	7%
68	64	2	2	6%
	562	26	11	

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Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
0%	0	0	144	144
2%	5	7	662	674
1%	1	0	83	84
	6	7	889	

Northfield Dr

Cars	Trucks	Heavys	Total
906	10	18	934

Weber St

Peds Cross: ⧖
West Peds: 16
West Entering: 902
West leg Total: 1,396

Heavys	9
Trucks	3
Cars	394
Total	406

Total	31	107	99	
Cars	30	99	96	225
Trucks	1	1	1	3
Heavys	0	7	2	9
% Trks	3%	7%	3%	

Peds Cross: ⋈
South Peds: 16
South Entering: 237
South leg Total: 643

Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,207**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **902**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Mid-day Peak Diagram

Count Period
From: 12:00 PM
To: 2:00 PM

Peak Hour
From: 12:00 PM
To: 1:00 PM

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions:
Partly Cloudy/Dry

Person(s) who counted:
Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Leg Total:	893
North Entering:	445
North Peds:	28
Peds Cross:	⋈

% Trks	7%	5%	13%	
Heavys	1	4	15	20
Trucks	3	7	8	18
Cars	56	198	153	407
Total	60	209	176	

Heavys	Trucks	Cars	Total
6	16	559	581

Heavys	7
Trucks	11
Cars	430
Total	448

East Leg Total:	1,362
East Entering:	704
East Peds:	27
Peds Cross:	⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
156	147	5	4	6%
465	447	13	5	4%
83	80	1	2	4%
	674	19	11	

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Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
8%	2	6	93	101
3%	6	8	405	419
0%	0	0	52	52
	8	14	550	

Northfield Dr

Cars	Trucks	Heavys	Total
621	16	21	658

Weber St

Total	56	191	63	
Cars	56	190	63	309
Trucks	0	0	0	0
Heavys	0	1	0	1
% Trks	0%	1%	0%	

Peds Cross:	⧖
West Peds:	23
West Entering:	572
West leg Total:	1,153

Heavys	6
Trucks	8
Cars	330
Total	344

Peds Cross:	⋈
South Peds:	26
South Entering:	310
South leg Total:	654

Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,031**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **572**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Afternoon Peak Diagram

Count Period
From: 3:00 PM
To: 6:00 PM

Peak Hour
From: 4:45 PM
To: 5:45 PM

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions:
Partly Cloudy/Dry

Person(s) who counted:
Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Leg Total: 1,185
North Entering: 716
North Peds: 16
Peds Cross: ⋈

% Trks	1%	1%	3%	
Heavys	1	0	4	5
Trucks	0	2	3	5
Cars	152	303	251	706
Total	153	305	258	

Heavys	Trucks	Cars	Total
8	10	1,104	1,122

East Leg Total: 1,962
East Entering: 1,192
East Peds: 13
Peds Cross: ⧖

Heavys	5
Trucks	2
Cars	462
Total	469

Weber St

Total	Cars	Trucks	Heavys	% Trks
154	149	1	4	3%
905	889	9	7	2%
133	131	1	1	2%
	1,169	11	12	

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
2%	1	1	110	112
2%	6	4	430	440
0%	0	0	69	69
	7	5	609	

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Northfield Dr

Cars	Trucks	Heavys	Total
753	7	10	770

Weber St

Total	64	203	72
Cars	63	203	72	338
Trucks	1	0	0	1
Heavys	0	0	0	0
% Trks	2%	0%	0%	

Peds Cross: ⧖
West Peds: 26
West Entering: 621
West leg Total: 1,743

Heavys	1
Trucks	3
Cars	503
Total	507

Peds Cross: ⋈
South Peds: 18
South Entering: 339
South leg Total: 846

Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **2,868**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **621**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Total Count Diagram

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Partly Cloudy/Dry

Person(s) who counted: Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Leg Total:	7,443
North Entering:	4,169
North Peds:	137
Peds Cross:	⋈
Bicycles Entering:	59
Buggies Entering:	0

% Trks	4%	4%	8%	
Heavys	19	34	86	139
Trucks	16	32	35	83
Cars	748	1,778	1,421	3,947
Total	783	1,844	1,542	

Heavys	Trucks	Cars	Total
72	107	5,178	5,357

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
3%	18	11	867	896
3%	54	59	3,720	3,833
2%	4	6	461	471
	76	76	5,048	

East Leg Total:	11,985
East Entering:	6,022
East Peds:	125
Peds Cross:	⧖
Bicycles Entering:	30
Buggies Entering:	0

Heavys	72
Trucks	48
Cars	3,154
Total	3,274

Weber St

Total	Cars	Trucks	Heavys	% Trks
1,101	1,041	19	41	5%
4,209	4,068	89	52	3%
712	691	10	11	3%
	5,800	118	104	

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Northfield Dr

Cars	Trucks	Heavys	Total
5,716	101	146	5,963

Weber St

Total	365	1,277	588	
Cars	362	1,246	575	2,183
Trucks	2	18	7	27
Heavys	1	13	6	20
% Trks	1%	2%	2%	

Peds Cross:	⧖
West Peds:	217
West Entering:	5,200
West leg Total:	10,557
Bicycles Entering:	30
Buggies Entering:	0

Heavys	49
Trucks	48
Cars	2,930
Total	3,027

Peds Cross:	⋈
South Peds:	143
South Entering:	2,230
South leg Total:	5,257
Bicycles Entering:	36
Buggies Entering:	0

Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **17,621**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **5,200**

Notes: None

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions: Partly Cloudy/Dry

Person(s) who counted: Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Leg Total: 12,951
North Entering: 7,254
North Peds: N/A
Peds Cross: ⋈

% Trks	4%	4%	8%	
Heavys	33	59	150	242
Trucks	28	56	61	144
Cars	1,302	3,094	2,473	6,868
Total	1,362	3,209	2,683	

Heavys	Trucks	Cars	Total
125	186	9,010	9,321

Northfield Dr

% Trks	Heavys	Trucks	Cars	Total
3%	31	19	1,509	1,559
3%	94	103	6,473	6,669
2%	7	10	802	820
	132	132	8,784	

Peds Cross: ⧖
West Peds: N/A
West Entering: 9,048
West leg Total: 18,369

Heavys	85
Trucks	84
Cars	5,098
Total	5,267

Heavys	125
Trucks	84
Cars	5,488
Total	5697

East Leg Total: 20,854
East Entering: 10,478
East Peds: N/A
Peds Cross: ⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
1,916	1,811	33	71	5%
7,324	7,078	155	90	3%
1,239	1,202	17	19	3%
	10,092	205	181	

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Northfield Dr

Cars	Trucks	Heavys	Total
9,946	176	254	10,376

Weber St

Total	635	2,222	1,023
Cars	630	2,168	1,001	3,798
Trucks	3	31	12	47
Heavys	2	23	10	35
% Trks	1%	2%	2%	

Peds Cross: ⋈
South Peds: N/A
South Entering: 3,880
South leg Total: 9,147

Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***30,661***

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Peak Hour Factor By Movement

Municipality: Waterloo
Intersection: Weber St @ Northfield Dr
Control: Signalized
Major Road: Northfield Dr

Weather conditions:
Partly Cloudy/Dry

Person(s) who counted:
Matt & Doris

GeoID: 8117
Count Date: Wednesday, 08-Jun-22

North Approach PHF

AM Peak:	0.95
Mid-day Peak:	0.95
PM Peak:	0.91

	Movement		
PM	0.81	0.94	0.82
MID	0.71	0.89	0.90
AM	0.84	0.92	0.84

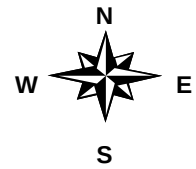
East Approach PHF

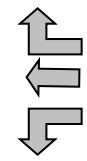
AM Peak:	0.92
Mid-day Peak:	0.94
PM Peak:	0.89

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour



Weber St



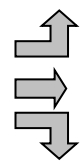


AM	MID	PM	
0.87	0.85	0.90	
0.94	0.87	0.87	Movement
0.77	0.80	0.85	

Northfield Dr

Northfield Dr

Movement	PM	MID	AM
	0.74	0.84	0.78
	0.95	0.91	0.94
	0.75	0.68	0.81





Weber St

West Approach PHF

AM Peak:	0.92
Mid-day Peak:	0.98
PM Peak:	0.93

0.65	0.89	0.71	AM
0.78	0.94	0.88	MID
0.84	0.82	0.90	PM

Movement

South Approach PHF

AM Peak:	0.86
Mid-day Peak:	0.91
PM Peak:	0.88

Comments

Intersection: Weber St @ Northfield Dr
GeoID: 8117
Municipality: Waterloo
Major Road: Northfield Dr

Intersection Control: Signalized
Date: Wednesday, 08-Jun-22
Name: Matt & Doris
Weather: Partly Cloudy/Dry

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			TOTAL	TOTAL HOUR
Approach Control	***Signalized***			***Signalized***			***Signalized***			***Signalized***				
7:30 to 7:45	23	134	10	8	43	26	3	21	9	36	56	22	391	
7:45 to 8:00	37	176	26	18	101	24	5	23	22	34	69	16	551	
8:00 to 8:15	28	148	23	16	109	34	7	30	26	48	61	15	545	
8:15 to 8:30	33	170	15	12	93	29	12	27	16	37	65	15	524	2,011
8:30 to 8:45	46	180	20	22	106	35	7	27	35	42	59	8	587	2,207
8:45 to 9:00	32	178	14	13	104	35	5	35	27	38	47	12	540	2,196
9:00 to 9:15	24	125	13	25	86	40	5	33	17	43	38	12	461	2,112
9:15 to 9:30	29	144	25	16	70	33	9	29	14	38	58	18	483	2,071
9:30 to 9:45	19	104	14	18	93	38	5	30	22	25	38	8	414	1,898
9:45 to 10:00	25	114	17	10	83	24	2	30	18	35	47	16	421	1,779
10:00 to 10:15	15	84	6	16	66	13	7	27	12	39	33	11	329	1,647
10:15 to 10:30	21	86	7	15	60	16	10	34	16	29	45	10	349	1,513
AM Peak Hour														
7:45 to 8:45	**144**	**674**	**84**	**68**	**409**	**122**	**31**	**107**	**99**	**161**	**254**	**54**	**2,207**	
# of trucks in peak	0	7	0	2	21	3	1	1	1	2	1	2	41	
# of heavies in peak	0	5	1	2	7	2	0	7	2	11	6	1	44	
% heavies (Total)	0%	2%	1%	6%	7%	4%	3%	7%	3%	8%	3%	6%	4%	
12:00 to 12:15	18	115	10	16	134	38	18	51	12	36	47	21	516	
12:15 to 12:30	25	108	10	20	122	35	11	47	16	45	52	19	510	
12:30 to 12:45	28	99	13	26	112	46	11	42	17	46	51	11	502	
12:45 to 13:00	30	97	19	21	97	37	16	51	18	49	59	9	503	2,031
13:00 to 13:15	24	100	13	16	104	49	11	37	17	35	41	34	481	1,996
13:15 to 13:30	28	85	9	23	95	30	11	46	21	39	46	16	449	1,935
13:30 to 13:45	30	109	12	17	108	36	5	32	20	48	49	25	491	1,924
13:45 to 14:00	21	114	9	23	99	35	8	50	11	30	57	18	475	1,896
Midday Peak Hour														
12:00 to 13:00	**101**	**419**	**52**	**83**	**465**	**156**	**56**	**191**	**63**	**176**	**209**	**60**	**2,031**	
# of trucks in peak	6	8	0	1	13	5	0	0	0	8	7	3	51	
# of heavies in peak	2	6	0	2	5	4	0	1	0	15	4	1	40	
% heavies (Total)	8%	3%	0%	4%	4%	6%	0%	1%	0%	13%	5%	7%	4%	
15:00 to 15:15	44	104	8	30	161	31	16	52	15	79	69	41	650	
15:15 to 15:30	34	97	13	20	174	28	22	47	19	58	56	27	595	
15:30 to 15:45	28	95	14	31	159	36	12	50	23	76	75	47	646	
15:45 to 16:00	38	128	12	37	152	46	22	40	22	58	66	35	656	2,547
16:00 to 16:15	17	127	15	23	188	40	16	53	19	77	65	43	683	2,580
16:15 to 16:30	30	109	19	22	200	42	14	33	20	66	72	32	659	2,644
16:30 to 16:45	25	117	18	26	202	41	22	53	22	63	68	53	710	2,708
16:45 to 17:00	38	116	13	39	197	43	16	47	17	79	70	47	722	2,774
17:00 to 17:15	21	112	17	29	226	37	14	62	20	67	81	43	729	2,820
17:15 to 17:30	30	103	16	31	222	33	15	51	15	68	81	34	699	2,860
17:30 to 17:45	23	109	23	34	260	41	19	43	20	44	73	29	718	2,868
17:45 to 18:00	32	146	18	39	183	30	9	44	10	35	50	36	632	2,778
PM Peak Hour														
16:45 to 17:45	**112**	**440**	**69**	**133**	**905**	**154**	**64**	**203**	**72**	**258**	**305**	**153**	**2,868**	
# of trucks in peak	1	4	0	1	9	1	1	0	0	3	2	0	22	
# of heavies in peak	1	6	0	1	7	4	0	0	0	4	0	1	24	
% heavies (Total)	2%	2%	0%	2%	2%	3%	2%	0%	0%	3%	1%	1%	2%	

Intersection: Weber St @ Northfield Dr
GeoID: 8117
Municipality: Waterloo
Major Road: Northfield Dr

Intersection Control: Signalized
Date: Wednesday, 08-Jun-22
Name: Matt & Doris
Weather: Partly Cloudy/Dry

PEDESTRIAN CROSSING								
Time			Crossing Approach					
			East App.	West App.	North App.	South App.	TOTAL	TOTAL HOUR
7:30	to	7:45	0	3	5	2	10	
7:45	to	8:00	2	5	1	6	14	
8:00	to	8:15	4	2	0	2	8	
8:15	to	8:30	3	3	2	2	10	42
8:30	to	8:45	5	6	0	6	17	49
8:45	to	9:00	8	5	4	5	22	57
9:00	to	9:15	2	4	0	3	9	58
9:15	to	9:30	8	7	9	2	26	74
9:30	to	9:45	0	9	2	4	15	72
9:45	to	10:00	4	9	4	3	20	70
10:00	to	10:15	0	8	3	5	16	77
10:15	to	10:30	0	9	3	3	15	66
AM Peak Hour							**182**	
7:45	**to**	**8:45**	**14**	**16**	**3**	**16**	**49**	
12:00	to	12:15	6	13	2	7	28	
12:15	to	12:30	8	5	12	10	35	
12:30	to	12:45	5	2	9	1	17	
12:45	to	13:00	8	3	5	8	24	104
13:00	to	13:15	11	3	1	7	22	98
13:15	to	13:30	3	7	12	0	22	85
13:30	to	13:45	2	8	5	7	22	90
13:45	to	14:00	3	2	3	1	9	75
Midday Peak Hour							**179**	
12:00	**to**	**13:00**	27	23	28	26	**104**	
15:00	to	15:15	2	8	4	3	17	
15:15	to	15:30	5	12	6	3	26	
15:30	to	15:45	2	8	6	4	20	
15:45	to	16:00	1	8	6	5	20	83
16:00	to	16:15	5	11	2	7	25	91
16:15	to	16:30	2	12	6	4	24	89
16:30	to	16:45	4	15	8	6	33	102
16:45	to	17:00	4	4	5	4	17	99
17:00	to	17:15	2	9	4	2	17	91
17:15	to	17:30	5	7	3	10	25	92
17:30	to	17:45	2	6	4	2	14	73
17:45	to	18:00	9	4	1	9	23	79
PM Peak Hour							**261**	
16:45	**to**	**17:45**	13	26	16	18	**73**	

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Morning Peak Diagram

Count Period
From: 7:30 AM
To: 10:30 AM

Peak Hour
From: 8:00 AM
To: 9:00 AM

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions:
Overcast/Dry

Person(s) who counted:
Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22

North Leg Total: 594
North Entering: 354
North Peds: 1
Peds Cross: ⋈

% Trks	2%	2%	0%	
Heavys	2	2	0	4
Trucks	0	3	0	3
Cars	84	233	30	347
Total	86	238	30	

Heavys	Trucks	Cars	Total
2	0	291	293

Parkside Dr

% Trks	Heavys	Trucks	Cars	Total
5%	2	1	59	62
1%	1	1	164	166
2%	1	0	48	49
	4	2	271	

Weber St

Heavys	Trucks	Cars	Total
10	5	225	240

East Leg Total: 548
East Entering: 280
East Peds: 0
Peds Cross: ⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
13	13	0	0	0%
191	191	0	0	0%
76	70	2	4	8%
	274	2	4	

Parkside Dr

Cars	Trucks	Heavys	Total
259	2	7	268

Peds Cross: ⧖
West Peds: 3
West Entering: 277
West leg Total: 570

Heavys	7			
Trucks	5			
Cars	351			
Total	363			

Weber St

Total	16	165	72	
Cars	16	153	65	234
Trucks	0	4	1	5
Heavys	0	8	6	14
% Trks	0%	7%	10%	

Peds Cross: ⋈
South Peds: 13
South Entering: 253
South leg Total: 616

Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **1,164**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **277**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Mid-day Peak Diagram

Count Period
From: 12:00 PM
To: 2:00 PM

Peak Hour
From: 12:15 PM
To: 1:15 PM

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions: Overcast/Dry

Person(s) who counted: Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22

North Leg Total:	675
North Entering:	350
North Peds:	5
Peds Cross:	⋈

% Trks	3%	2%	3%	
Heavys	1	4	0	5
Trucks	1	2	1	4
Cars	61	247	33	341
Total	63	253	34	

Heavys	4
Trucks	9
Cars	312
Total	325

East Leg Total:	491
East Entering:	229
East Peds:	1
Peds Cross:	⧖

Heavys	Trucks	Cars	Total
3	3	195	201

Weber St

Total	Cars	Trucks	Heavys	% Trks
28	27	1	0	4%
119	116	2	1	3%
82	77	1	4	6%
	220	4	5	

Parkside Dr

% Trks	Heavys	Trucks	Cars	Total
4%	0	2	49	51
4%	3	2	130	135
6%	1	1	29	31
	4	5	208	

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Parkside Dr

Cars	Trucks	Heavys	Total
247	8	7	262

Weber St

Total	19	246	93	
Cars	18	236	84	338
Trucks	0	6	5	11
Heavys	1	4	4	9
% Trks	5%	4%	10%	

Peds Cross:	⧖
West Peds:	3
West Entering:	217
West leg Total:	418

Heavys	9
Trucks	4
Cars	353
Total	366

Peds Cross:	⋈
South Peds:	12
South Entering:	358
South leg Total:	724

Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **1,154**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **217**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Afternoon Peak Diagram

Count Period
From: 3:00 PM
To: 6:00 PM

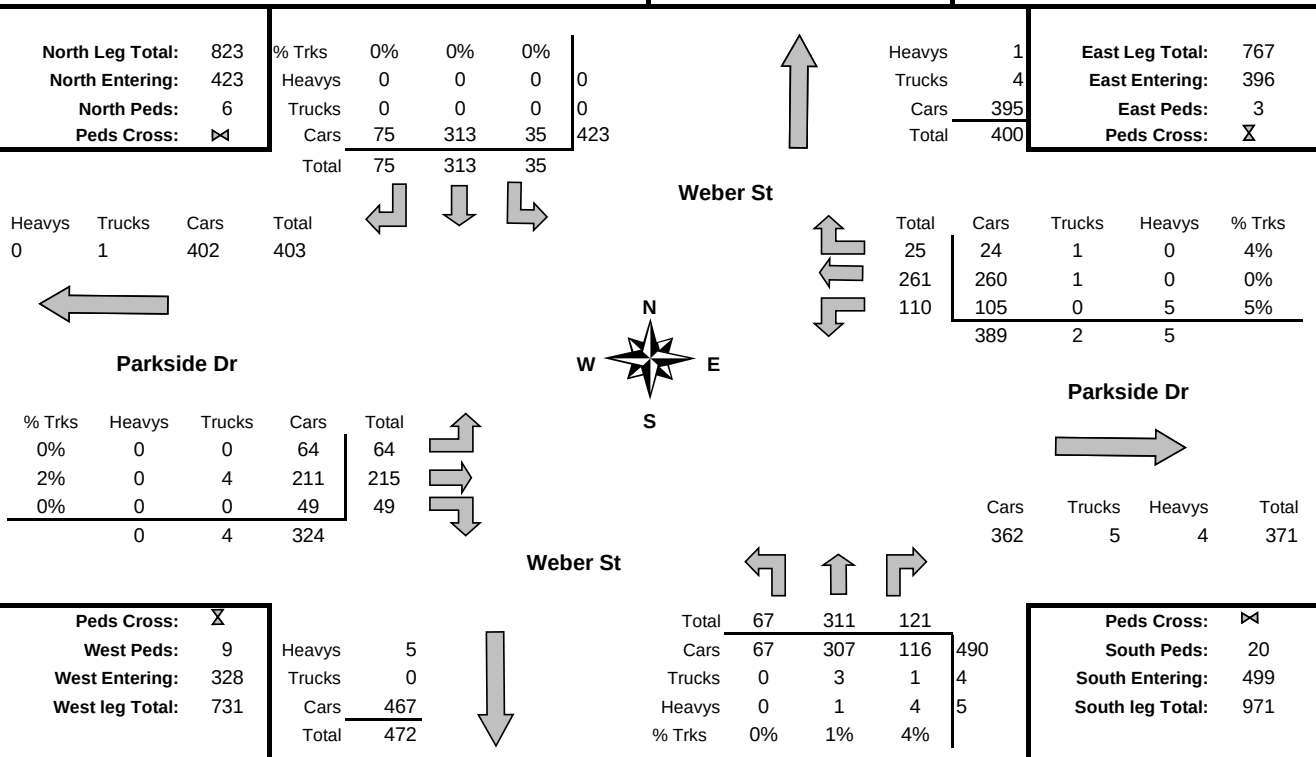
Peak Hour
From: 4:30 PM
To: 5:30 PM

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions: Overcast/Dry

Person(s) who counted: Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22



Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **1,646**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **328**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Total Count Diagram

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions: Overcast/Dry

Person(s) who counted: Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22

North Leg Total: 5,036
North Entering: 2,660
North Peds: 28
Peds Cross: ⋈
Bicycles Entering: 7
Buggies Entering: 0

% Trks	2%	3%	2%	
Heavys	7	32	0	39
Trucks	4	20	4	28
Cars	506	1,874	213	2,593
Total	517	1,926	217	

Heavys	Trucks	Cars	Total
38	38	2,300	2,376

East Leg Total: 4,331
East Entering: 2,171
East Peds: 17
Peds Cross: ⧖
Bicycles Entering: 14
Buggies Entering: 0

Heavys	Trucks	Cars	Total
15	13	2,080	2,108

Weber St

Total	Cars	Trucks	Heavys	% Trks
186	181	4	1	3%
1,331	1,318	8	5	1%
654	610	9	35	7%
	2,109	21	41	

Parkside Dr

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% Trks	Heavys	Trucks	Cars	Total
2%	5	5	445	455
2%	9	11	1,256	1,276
4%	8	6	304	318
	22	22	2,005	

Parkside Dr

Cars	Trucks	Heavys	Total
2,079	33	48	2,160

Weber St

Peds Cross: ⧖
West Peds: 43
West Entering: 2,049
West leg Total: 4,157
Bicycles Entering: 17
Buggies Entering: 0

Heavys	75
Trucks	35
Cars	2,788
Total	2,898

Total	260	1,735	667	
Cars	256	1,674	610	2,540
Trucks	1	29	18	48
Heavys	3	32	39	74
% Trks	2%	4%	9%	

Peds Cross: ⋈
South Peds: 101
South Entering: 2,662
South leg Total: 5,560
Bicycles Entering: 3
Buggies Entering: 0

Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **9,542**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **2,049**

Notes: None

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions: Overcast/Dry

Person(s) who counted: Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22

North Leg Total: 8,763
North Entering: 4,628
North Peds: N/A
Peds Cross: ⋈

	% Trks	2%	3%	2%	
	Heavys	12	56	0	68
	Trucks	7	35	7	49
	Cars	880	3,261	371	4,512
	Total	900	3,351	378	

Heavys	Trucks	Cars	Total
66	66	4,002	4134

East Leg Total: 7,536
East Entering: 3,778
East Peds: N/A
Peds Cross: ⧖

Weber St

Heavys	Trucks	Cars	Total
26	23	3,619	3,668

Parkside Dr

Total	Cars	Trucks	Heavys	% Trks
324	315	7	2	3%
2,316	2,293	14	9	1%
1,138	1,061	16	61	7%
	3,670	37	71	

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Parkside Dr

% Trks	Heavys	Trucks	Cars	Total
2%	9	9	774	792
2%	16	19	2,185	2,220
4%	14	10	529	553
	38	38	3,489	

Cars	Trucks	Heavys	Total
3,617	57	84	3,758

Weber St

Peds Cross: ⧖
West Peds: N/A
West Entering: 3,565
West leg Total: 7,233

	Heavys	131
	Trucks	61
	Cars	4,851
	Total	5,043

Total	452	3,019	1,161	
Cars	445	2,913	1,061	4,420
Trucks	2	50	31	84
Heavys	5	56	68	129
% Trks	2%	4%	9%	

Peds Cross: ⋈
South Peds: N/A
South Entering: 4,632
South leg Total: 9,674

Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: (West leg total + South leg total + East leg total + North leg total) / 2 ***EDT =*** ***16,603***

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Peak Hour Factor By Movement

Municipality: Waterloo
Intersection: Weber St @ Parkside Dr (Southerly Intersection
Control: Signalized
Major Road: Weber St

Weather conditions: Overcast/Dry

Person(s) who counted: Cam

GeoID: 8058
Count Date: Thursday, 08-Dec-22

North Approach PHF

AM Peak:	0.84
Mid-day Peak:	0.92
PM Peak:	0.84

East Approach PHF

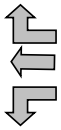
AM Peak:	0.85
Mid-day Peak:	0.84
PM Peak:	0.77

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

Weber St

	Movement		
PM	0.72	0.87	0.88
MID	0.88	0.85	0.77
AM	0.77	0.88	0.83





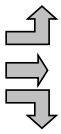
	AM	MID	PM
Movement	0.46	0.70	0.78
	0.87	0.88	0.73
	0.73	0.79	0.76

Parkside Dr



Parkside Dr

Movement	PM	MID	AM
	0.84	0.85	0.78
	0.80	0.78	0.78
	0.94	0.78	0.58



Weber St



	0.57	0.84	0.69	AM
	0.59	0.84	0.78	MID
	0.76	0.91	0.84	PM
Movement				

West Approach PHF

AM Peak:	0.92
Mid-day Peak:	0.82
PM Peak:	0.83

South Approach PHF

AM Peak:	0.81
Mid-day Peak:	0.81
PM Peak:	0.91

Comments

Intersection: Weber St @ Parkside Dr (Southerly
GeoID: 8058
Municipality: Waterloo
Major Road: Weber St

Intersection Control: Signalized
Date: Thursday, 08-Dec-22
Name: Cam
Weather: Overcast/Dry

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
Approach Control	***Signalized***			***Signalized***			***Signalized***			***Signalized***			**TOTAL**	**TOTAL HOUR**
7:30 to 7:45	14	44	10	13	27	4	1	19	12	3	48	7	202	
7:45 to 8:00	15	34	14	16	42	2	4	39	9	4	72	12	263	
8:00 to 8:15	17	41	9	17	44	3	7	49	11	4	65	21	288	
8:15 to 8:30	20	33	11	14	41	2	4	48	26	9	48	19	275	1,028
8:30 to 8:45	11	39	21	19	51	7	2	31	14	9	68	28	300	1,126
8:45 to 9:00	14	53	8	26	55	1	3	37	21	8	57	18	301	1,164
9:00 to 9:15	8	36	9	18	48	5	2	31	15	7	59	12	250	1,126
9:15 to 9:30	15	32	9	16	38	0	3	42	19	9	48	17	248	1,099
9:30 to 9:45	9	31	9	14	39	5	4	45	12	3	42	13	226	1,025
9:45 to 10:00	13	29	3	14	22	6	2	41	13	6	48	13	210	934
10:00 to 10:15	9	27	4	11	16	3	2	41	16	4	44	10	187	871
10:15 to 10:30	8	28	6	15	27	1	7	36	17	3	45	8	201	824
AM Peak Hour														
8:00 to 9:00	**62**	**166**	**49**	**76**	**191**	**13**	**16**	**165**	**72**	**30**	**238**	**86**	**1,164**	
# of trucks in peak	1	1	0	2	0	0	0	4	1	0	3	0	12	
# of heavies in peak	2	1	1	4	0	0	0	8	6	0	2	2	26	
% heavies (Total)	5%	1%	2%	8%	0%	0%	0%	7%	10%	0%	2%	2%	3%	
12:00 to 12:15	14	39	5	21	37	12	6	78	15	7	51	13	298	
12:15 to 12:30	13	28	10	19	25	4	3	66	26	8	74	13	289	
12:30 to 12:45	10	25	5	26	34	8	3	53	21	11	53	18	267	
12:45 to 13:00	15	43	8	18	26	10	5	54	16	10	70	14	289	1,143
13:00 to 13:15	13	39	8	19	34	6	8	73	30	5	56	18	309	1,154
13:15 to 13:30	12	32	8	20	35	5	12	57	19	7	47	11	265	1,130
13:30 to 13:45	12	43	8	25	33	8	9	50	20	6	54	12	280	1,143
13:45 to 14:00	19	32	9	26	30	5	8	49	19	4	62	15	278	1,132
Midday Peak Hour														
12:15 to 13:15	**51**	**135**	**31**	**82**	**119**	**28**	**19**	**246**	**93**	**34**	**253**	**63**	**1,154**	
# of trucks in peak	2	2	1	1	2	1	0	6	5	1	2	1	24	
# of heavies in peak	0	3	1	4	1	0	1	4	4	0	4	1	23	
% heavies (Total)	4%	4%	6%	6%	3%	4%	5%	4%	10%	3%	2%	3%	4%	
15:00 to 15:15	18	42	6	15	31	5	10	49	22	7	67	19	291	
15:15 to 15:30	12	33	8	20	41	6	13	52	31	4	51	21	292	
15:30 to 15:45	9	41	13	28	60	15	13	54	24	8	72	11	348	
15:45 to 16:00	12	51	9	27	50	5	9	69	25	9	58	29	353	1,284
16:00 to 16:15	24	47	15	20	40	7	19	76	29	5	73	18	373	1,366
16:15 to 16:30	17	47	17	25	57	12	10	63	20	12	66	17	363	1,437
16:30 to 16:45	16	58	12	24	48	6	16	85	36	10	90	26	427	1,516
16:45 to 17:00	19	67	13	27	70	8	12	79	30	10	75	14	424	1,587
17:00 to 17:15	13	48	13	36	89	4	17	80	23	9	76	18	426	1,640
17:15 to 17:30	16	42	11	23	54	7	22	67	32	6	72	17	369	1,646
17:30 to 17:45	18	51	14	23	50	5	15	57	29	8	63	17	350	1,569
17:45 to 18:00	20	41	13	19	37	9	9	65	15	2	52	18	300	1,445
PM Peak Hour														
16:30 to 17:30	**64**	**215**	**49**	**110**	**261**	**25**	**67**	**311**	**121**	**35**	**313**	**75**	**1,646**	
# of trucks in peak	0	4	0	0	1	1	0	3	1	0	0	0	10	
# of heavies in peak	0	0	0	5	0	0	0	1	4	0	0	0	10	
% heavies (Total)	0%	2%	0%	5%	0%	4%	0%	1%	4%	0%	0%	0%	1%	

Intersection: Weber St @ Parkside Dr (Southerly Iı
GeoID: 8058
Municipality: Waterloo
Major Road: Weber St

Intersection Control: Signalized
Date: Thursday, 08-Dec-22
Name: Cam
Weather: Overcast/Dry

PEDESTRIAN CROSSING								
Time			Crossing Approach					
			East App.	West App.	North App.	South App.	TOTAL	TOTAL HOUR
7:30	to	7:45	0	1	1	3	5	
7:45	to	8:00	1	2	1	2	6	
8:00	to	8:15	0	0	0	0	0	
8:15	to	8:30	0	0	0	2	2	13
8:30	to	8:45	0	2	1	9	12	20
8:45	to	9:00	0	1	0	2	3	17
9:00	to	9:15	1	3	0	0	4	21
9:15	to	9:30	0	2	0	3	5	24
9:30	to	9:45	0	1	0	4	5	17
9:45	to	10:00	0	0	1	2	3	17
10:00	to	10:15	1	2	2	3	8	21
10:15	to	10:30	0	0	0	2	2	18
AM Peak Hour							**55**	
8:00	**to**	**9:00**	**0**	**3**	**1**	**13**	**17**	
12:00	to	12:15	1	0	0	3	4	
12:15	to	12:30	0	0	1	3	4	
12:30	to	12:45	1	1	0	1	3	
12:45	to	13:00	0	0	2	4	6	17
13:00	to	13:15	0	2	2	4	8	21
13:15	to	13:30	0	0	0	1	1	18
13:30	to	13:45	2	0	0	3	5	20
13:45	to	14:00	1	0	1	5	7	21
Midday Peak Hour							**38**	
12:15	**to**	**13:15**	1	3	5	12	**21**	
15:00	to	15:15	0	0	0	1	1	
15:15	to	15:30	0	1	1	2	4	
15:30	to	15:45	4	2	3	8	17	
15:45	to	16:00	1	1	2	4	8	30
16:00	to	16:15	1	2	2	2	7	36
16:15	to	16:30	0	1	0	4	5	37
16:30	to	16:45	0	3	0	3	6	26
16:45	to	17:00	2	2	4	10	18	36
17:00	to	17:15	0	2	2	1	5	34
17:15	to	17:30	1	2	0	6	9	38
17:30	to	17:45	0	3	1	2	6	38
17:45	to	18:00	0	7	1	2	10	30
PM Peak Hour							**96**	
16:30	**to**	**17:30**	3	9	6	20	**38**	

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Morning Peak Diagram

Count Period
From: 7:30 AM
To: 10:30 AM

Peak Hour
From: 7:45 AM
To: 8:45 AM

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Leg Total: 619
North Entering: 372
North Peds: 0
Peds Cross: ⋈

	% Trks	0%	6%	11%	
	Heavys	0	14	4	18
	Trucks	0	5	1	6
	Cars	0	308	40	348
	Total	0	327	45	

Heavys	Trucks	Cars	Total
0	0	0	0

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% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
0%	0	0	0	0
0%	0	0	0	0
	0	0	0	

Weber St

	Heavys	Trucks	Cars	Total
	13	6	228	247

East Leg Total: 249
East Entering: 96
East Peds: 6
Peds Cross: ⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
24	21	0	3	13%
0	0	0	0	0%
72	52	5	15	28%
	73	5	18	

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Randall Dr

Cars	Trucks	Heavys	Total
143	1	9	153

Weber St

Peds Cross: ⧖
West Peds: 0
West Entering: 0
West leg Total: 0

Heavys	29	
Trucks	10	
Cars	360	
Total	399	

Total	0	223	108	
Cars	0	207	103	310
Trucks	0	6	0	6
Heavys	0	10	5	15
% Trks	0%	7%	5%	

Peds Cross: ⋈
South Peds: 0
South Entering: 331
South leg Total: 730

Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **799**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Mid-day Peak Diagram

Count Period
From: 12:00 PM
To: 2:00 PM

Peak Hour
From: 12:00 PM
To: 1:00 PM

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Leg Total: 720
North Entering: 351
North Peds: 1
Peds Cross: ⋈

	% Trks	0%	2%	13%	
	Heavys	0	7	2	9
	Trucks	0	1	2	3
	Cars	0	313	26	339
	Total	0	321	30	

Heavys	Trucks	Cars	Total
0	0	0	0

East Leg Total: 305
East Entering: 185
East Peds: 10
Peds Cross: ⧖

Heavys	6
Trucks	5
Cars	358
Total	369

Weber St

Total	Cars	Trucks	Heavys	% Trks
56	51	2	3	9%
0	0	0	0	0%
129	111	6	12	14%
	162	8	15	

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% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
0%	0	0	0	0
0%	0	0	0	0
	0	0	0	

Randall Dr

Cars	Trucks	Heavys	Total
109	3	8	120

Weber St

Peds Cross: ⧖
West Peds: 0
West Entering: 0
West leg Total: 0

Heavys	19
Trucks	7
Cars	424
Total	450

Total	0	313	90	
Cars	0	307	83	390
Trucks	0	3	1	4
Heavys	0	3	6	9
% Trks	0%	2%	8%	

Peds Cross: ⋈
South Peds: 0
South Entering: 403
South leg Total: 853

Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **939**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Afternoon Peak Diagram

Count Period
From: 3:00 PM
To: 6:00 PM

Peak Hour
From: 3:00 PM
To: 4:00 PM

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Leg Total: 782
North Entering: 331
North Peds: 0
Peds Cross: ⋈

% Trks	0%	4%	32%	
Heavys	0	10	6	16
Trucks	0	1	3	4
Cars	0	292	19	311
Total	0	303	28	

Heavys	Trucks	Cars	Total
0	0	0	0

Heavys	Trucks	Cars	Total
14	3	434	451

East Leg Total: 531
East Entering: 431
East Peds: 5
Peds Cross: ⧖

Weber St

Total	Cars	Trucks	Heavys	% Trks
136	131	1	4	4%
0	0	0	0	0%
295	281	5	9	5%
	412	6	13	

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% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
0%	0	0	0	0
0%	0	0	0	0
	0	0	0	

Randall Dr

Cars	Trucks	Heavys	Total
85	4	11	100

Weber St

Peds Cross: ⧖
West Peds: 0
West Entering: 0
West leg Total: 0

Heavys	19
Trucks	6
Cars	573
Total	598

Total	0	315	72	
Cars	0	303	66	369
Trucks	0	2	1	3
Heavys	0	10	5	15
% Trks	0%	4%	8%	

Peds Cross: ⋈
South Peds: 0
South Entering: 387
South leg Total: 985

Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **1,149**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **0**

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Total Count Diagram

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Leg Total:	5,358
North Entering:	2,600
North Peds:	5
Peds Cross:	⋈
Bicycles Entering:	14
Buggies Entering:	0

% Trks	0%	4%	15%	
Heavys	0	75	22	97
Trucks	0	22	11	33
Cars	0	2,284	186	2,470
Total	0	2,381	219	

East Leg Total:	2,324
East Entering:	1,600
East Peds:	40
Peds Cross:	⧖
Bicycles Entering:	5
Buggies Entering:	0

Heavys	87
Trucks	30
Cars	2,641
Total	2,758

Heavys	Trucks	Cars	Total
0	0	0	0

Weber St

Total	Cars	Trucks	Heavys	% Trks
505	471	13	21	7%
0	0	0	0	0%
1,095	983	30	82	10%
	1,454	43	103	

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% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
0%	0	0	0	0
0%	0	0	0	0
	0	0	0	

Randall Dr

Cars	Trucks	Heavys	Total
635	18	71	724

Weber St

Peds Cross:	⧖
West Peds:	0
West Entering:	0
West leg Total:	0
Bicycles Entering:	0
Buggies Entering:	0

Heavys	157
Trucks	52
Cars	3,267
Total	3,476

Total	0	2,253	505	
Cars	0	2,170	449	2,619
Trucks	0	17	7	24
Heavys	0	66	49	115
% Trks	0%	4%	11%	

Peds Cross:	⋈
South Peds:	19
South Entering:	2,758
South leg Total:	6,234
Bicycles Entering:	11
Buggies Entering:	0

Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **6,958**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**

Notes: None

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Leg Total: 9,323
North Entering: 4,524
North Peds: N/A
Peds Cross: ⋈

	0%	4%	15%	
% Trks				
Heavys	0	131	38	169
Trucks	0	38	19	57
Cars	0	3,974	324	4,298
Total	0	4,143	381	

Heavys	Trucks	Cars	Total
0	0	0	0

East Leg Total: 4,044
East Entering: 2,784
East Peds: N/A
Peds Cross: ⋈

Heavys	151
Trucks	52
Cars	4,595
Total	4799

Weber St

Total	Cars	Trucks	Heavys	% Trks
879	820	23	37	7%
0	0	0	0	0%
1,905	1,710	52	143	10%
	2,530	75	179	

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% Trks	Heavys	Trucks	Cars	Total
0%	0	0	0	0
0%	0	0	0	0
0%	0	0	0	0
	0	0	0	

Randall Dr

Cars	Trucks	Heavys	Total
1,105	31	124	1,260

Weber St

Peds Cross: ⧖
West Peds: N/A
West Entering: 0
West leg Total: 0

Heavys	273
Trucks	90
Cars	5,685
Total	6,048

	0	3,920	879	
Total				
Cars	0	3,776	781	4,557
Trucks	0	30	12	42
Heavys	0	115	85	200
% Trks	0%	4%	11%	

Peds Cross: ⋈
South Peds: N/A
South Entering: 4,799
South leg Total: 10,847

Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***12,107***

REGIONAL MUNICIPALITY OF WATERLOO
TURNING MOVEMENT COUNT

Region of Waterloo

Peak Hour Factor By Movement

Municipality: Waterloo
Intersection: Weber St @ Randall Dr
Control: Signalized
Major Road: Weber St

Weather conditions: Cloudy/Dry

Person(s) who counted: Cam

GeoID: 8353
Count Date: Tuesday, 25-Oct-22

North Approach PHF

AM Peak:	0.87
Mid-day Peak:	0.91
PM Peak:	0.81

	Movement		
PM	0.00	0.82	0.70
MID	0.00	0.94	0.68
AM	0.00	0.88	0.80

Weber St

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

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AM	MID	PM	
0.75	0.56	0.53	
0.00	0.00	0.00	
0.86	0.72	0.66	Movement

Randall Dr

East Approach PHF

AM Peak:	0.89
Mid-day Peak:	0.66
PM Peak:	0.62

Movement	PM	MID	AM
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00

Weber St

Weber St

0.00	0.94	0.71	AM
0.00	0.86	0.73	MID
0.00	0.89	0.60	PM
	Movement		

West Approach PHF

AM Peak:	0.00
Mid-day Peak:	0.00
PM Peak:	0.00

South Approach PHF

AM Peak:	0.87
Mid-day Peak:	0.87
PM Peak:	0.94

Comments

Intersection: Weber St @ Randall Dr
GeoID: 8353
Municipality: Waterloo
Major Road: Weber St

Intersection Control: Signalized
Date: Tuesday, 25-Oct-22
Name: Cam
Weather: Cloudy/Dry

	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			TOTAL	TOTAL HOUR
Approach Control	***N/A***			***Signalized***			***Signalized***			***Signalized***				
7:30 to 7:45	0	0	0	42	0	9	0	36	21	10	60	0	178	
7:45 to 8:00	0	0	0	19	0	8	0	52	26	14	93	0	212	
8:00 to 8:15	0	0	0	18	0	5	0	59	20	7	73	0	182	
8:15 to 8:30	0	0	0	21	0	5	0	55	24	13	79	0	197	769
8:30 to 8:45	0	0	0	14	0	6	0	57	38	11	82	0	208	799
8:45 to 9:00	0	0	0	11	0	4	0	67	28	18	63	0	191	778
9:00 to 9:15	0	0	0	12	0	6	0	51	16	7	54	0	146	742
9:15 to 9:30	0	0	0	10	0	5	0	46	20	6	66	0	153	698
9:30 to 9:45	0	0	0	10	0	5	0	48	9	5	53	0	130	620
9:45 to 10:00	0	0	0	7	0	4	0	74	10	7	64	0	166	595
10:00 to 10:15	0	0	0	20	0	10	0	47	12	1	61	0	151	600
10:15 to 10:30	0	0	0	18	0	12	0	53	10	4	62	0	159	606
AM Peak Hour														
7:45 to 8:45	**0**	**0**	**0**	**72**	**0**	**24**	**0**	**223**	**108**	**45**	**327**	**0**	**799**	
# of trucks in peak	0	0	0	5	0	0	0	6	0	1	5	0	17	
# of heavies in peak	0	0	0	15	0	3	0	10	5	4	14	0	51	
% heavies (Total)	0%	0%	0%	28%	0%	13%	0%	7%	5%	11%	6%	0%	9%	
12:00 to 12:15	0	0	0	45	0	25	0	67	17	4	80	0	238	
12:15 to 12:30	0	0	0	31	0	11	0	91	25	11	85	0	254	
12:30 to 12:45	0	0	0	29	0	10	0	70	17	7	79	0	212	
12:45 to 13:00	0	0	0	24	0	10	0	85	31	8	77	0	235	939
13:00 to 13:15	0	0	0	20	0	8	0	61	17	11	50	0	167	868
13:15 to 13:30	0	0	0	15	0	9	0	72	14	4	62	0	176	790
13:30 to 13:45	0	0	0	16	0	5	0	57	13	7	68	0	166	744
13:45 to 14:00	0	0	0	17	0	10	0	64	9	8	68	0	176	685
Midday Peak Hour														
12:00 to 13:00	**0**	**0**	**0**	**129**	**0**	**56**	**0**	**313**	**90**	**30**	**321**	**0**	**939**	
# of trucks in peak	0	0	0	6	0	2	0	3	1	2	1	0	15	
# of heavies in peak	0	0	0	12	0	3	0	3	6	2	7	0	33	
% heavies (Total)	0%	0%	0%	14%	0%	9%	0%	2%	8%	13%	2%	0%	5%	
15:00 to 15:15	0	0	0	98	0	37	0	73	30	10	92	0	340	
15:15 to 15:30	0	0	0	30	0	16	0	78	25	10	69	0	228	
15:30 to 15:45	0	0	0	111	0	64	0	76	12	4	67	0	334	
15:45 to 16:00	0	0	0	56	0	19	0	88	5	4	75	0	247	1,149
16:00 to 16:15	0	0	0	57	0	30	0	88	13	5	85	0	278	1,087
16:15 to 16:30	0	0	0	47	0	24	0	76	6	3	75	0	231	1,090
16:30 to 16:45	0	0	0	77	0	33	0	101	5	2	86	0	304	1,060
16:45 to 17:00	0	0	0	51	0	36	0	100	4	2	99	0	292	1,105
17:00 to 17:15	0	0	0	60	0	21	0	86	12	6	101	0	286	1,113
17:15 to 17:30	0	0	0	39	0	30	0	107	3	2	84	0	265	1,147
17:30 to 17:45	0	0	0	43	0	20	0	86	5	5	86	0	245	1,088
17:45 to 18:00	0	0	0	27	0	8	0	82	8	3	83	0	211	1,007
PM Peak Hour														
15:00 to 16:00	**0**	**0**	**0**	**295**	**0**	**136**	**0**	**315**	**72**	**28**	**303**	**0**	**1,149**	
# of trucks in peak	0	0	0	5	0	1	0	2	1	3	1	0	13	
# of heavies in peak	0	0	0	9	0	4	0	10	5	6	10	0	44	
% heavies (Total)	0%	0%	0%	5%	0%	4%	0%	4%	8%	32%	4%	0%	5%	

Intersection: Weber St @ Randall Dr
GeoID: 8353
Municipality: Waterloo
Major Road: Weber St

Intersection Control: Signalized
Date: Tuesday, 25-Oct-22
Name: Cam
Weather: Cloudy/Dry

PEDESTRIAN CROSSING								
Time			Crossing Approach					
			East App.	West App.	North App.	South App.	TOTAL	TOTAL HOUR
7:30	to	7:45	0	0	0	2	2	
7:45	to	8:00	1	0	0	0	1	
8:00	to	8:15	0	0	0	0	0	
8:15	to	8:30	0	0	0	0	0	3
8:30	to	8:45	5	0	0	0	5	6
8:45	to	9:00	4	0	1	3	8	13
9:00	to	9:15	0	0	0	2	2	15
9:15	to	9:30	0	0	0	0	0	15
9:30	to	9:45	0	0	0	0	0	10
9:45	to	10:00	1	0	0	0	1	3
10:00	to	10:15	0	0	0	0	0	1
10:15	to	10:30	0	0	0	0	0	1
AM Peak Hour							**19**	
7:45	**to**	**8:45**	**6**	**0**	**0**	**0**	**6**	
12:00	to	12:15	3	0	0	0	3	
12:15	to	12:30	1	0	1	0	2	
12:30	to	12:45	2	0	0	0	2	
12:45	to	13:00	4	0	0	0	4	11
13:00	to	13:15	1	0	0	0	1	9
13:15	to	13:30	1	0	0	0	1	8
13:30	to	13:45	2	0	0	0	2	8
13:45	to	14:00	1	0	0	0	1	5
Midday Peak Hour							**16**	
12:00	**to**	**13:00**	10	0	1	0	**11**	
15:00	to	15:15	2	0	0	0	2	
15:15	to	15:30	1	0	0	0	1	
15:30	to	15:45	1	0	0	0	1	
15:45	to	16:00	1	0	0	0	1	5
16:00	to	16:15	0	0	0	0	0	3
16:15	to	16:30	1	0	0	0	1	3
16:30	to	16:45	3	0	1	2	6	8
16:45	to	17:00	0	0	0	3	3	10
17:00	to	17:15	1	0	1	5	7	17
17:15	to	17:30	1	0	0	0	1	17
17:30	to	17:45	1	0	1	2	4	15
17:45	to	18:00	2	0	0	0	2	14
PM Peak Hour							**29**	
15:00	**to**	**16:00**	5	0	0	0	**5**	

Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - Full Study

Description: HWY 85 @ NORTHFIELD DR W - RAMP 24

Region WEST

Hwy #: HWY 85

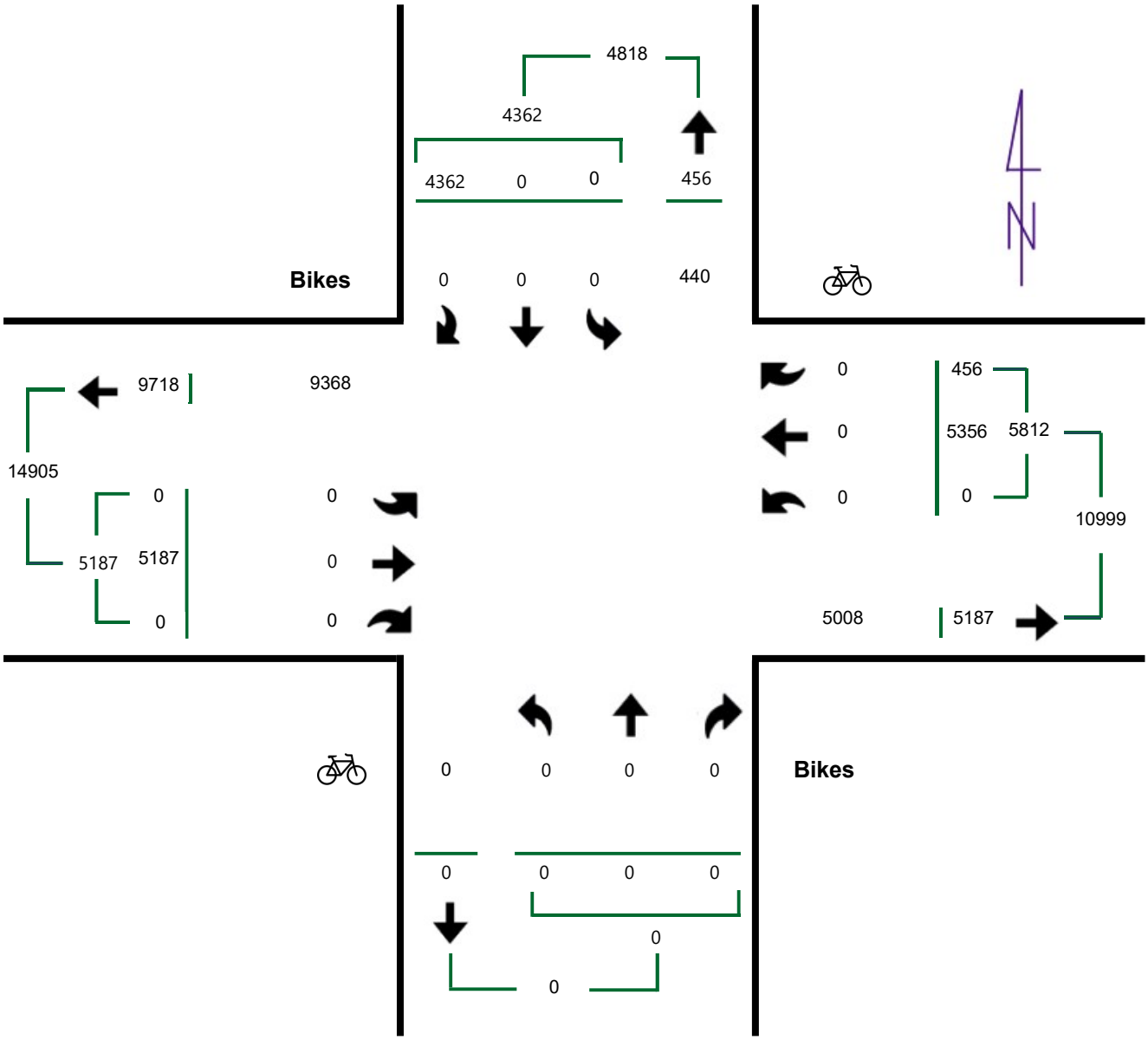
LHRS_Offset: 38480_0000_24T

Count Period: 9/27/2022 07:00 AM to 9/27/2022 06:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

Full Study



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - AM Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 24

Region WEST

Hwy #: HWY 85

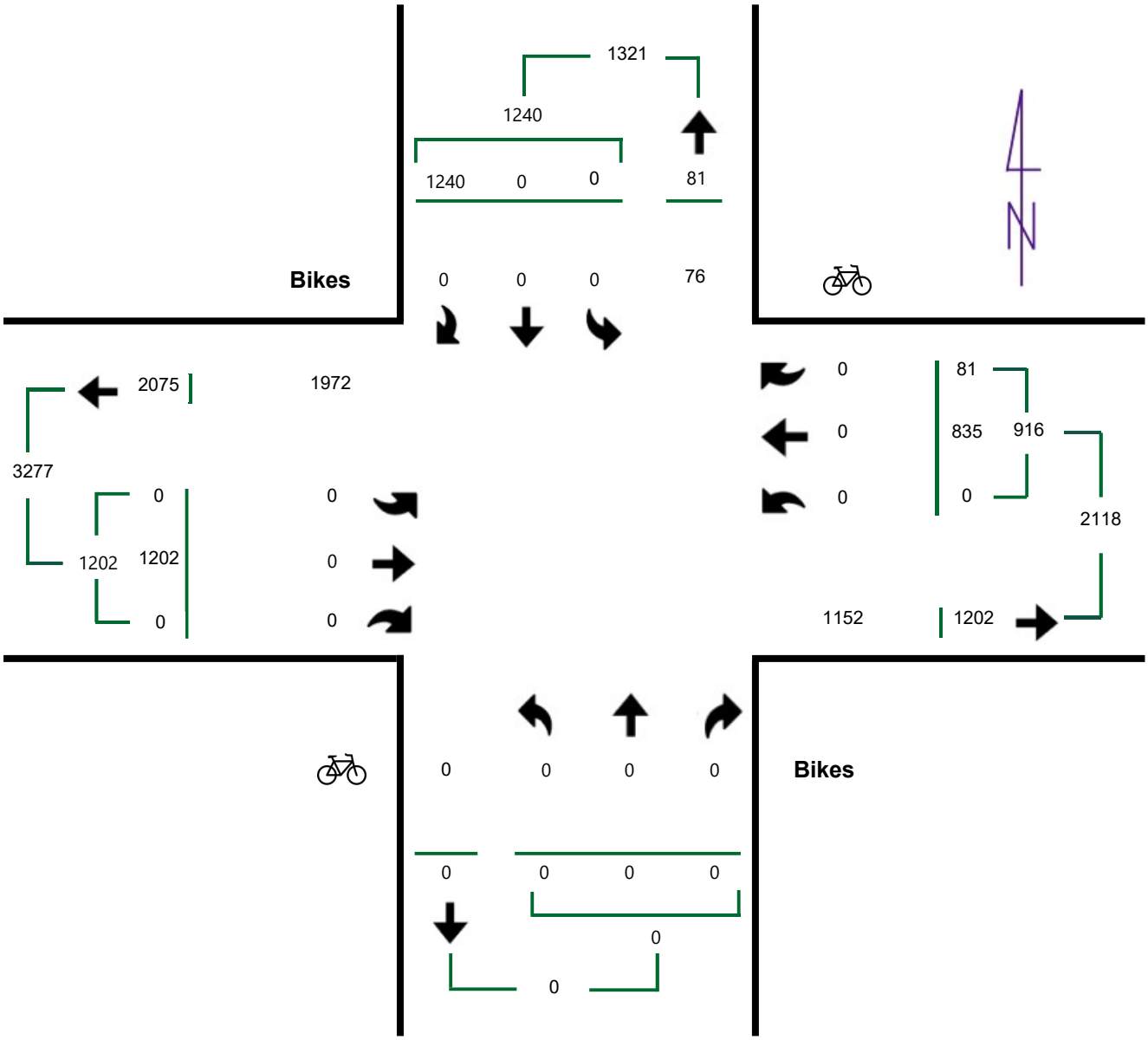
LHRS_Offset: 38480_0000_24T

Count Period: 9/27/2022 07:00 AM to 9/27/2022 09:00 AM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

AM Period



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - MD Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 24

Region WEST

Hwy #: HWY 85

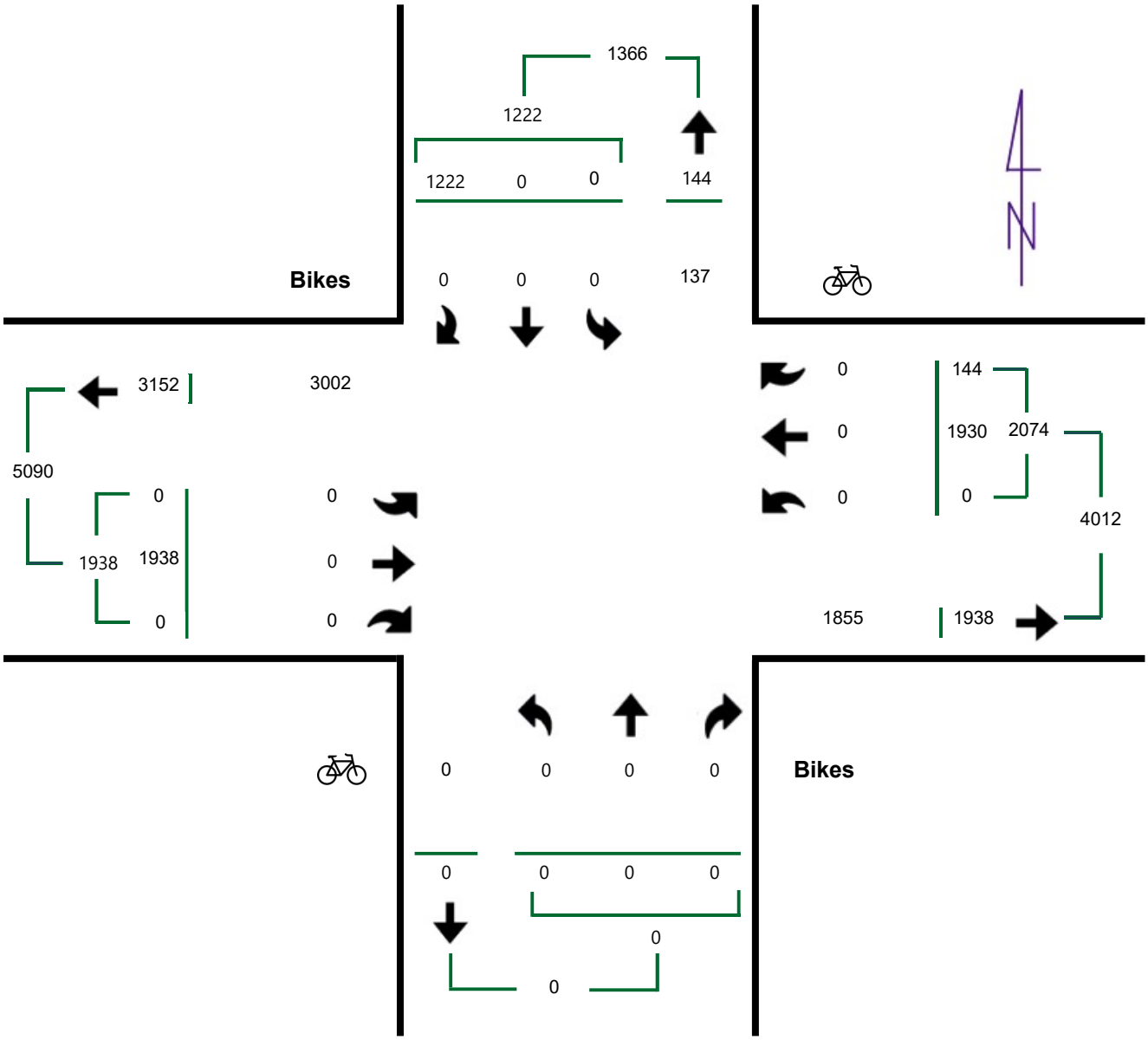
LHRS_Offset: 38480_0000_24T

Count Period: 9/27/2022 11:00 AM to 9/27/2022 02:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

MD Period



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - PM Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 24

Region WEST

Hwy #: HWY 85

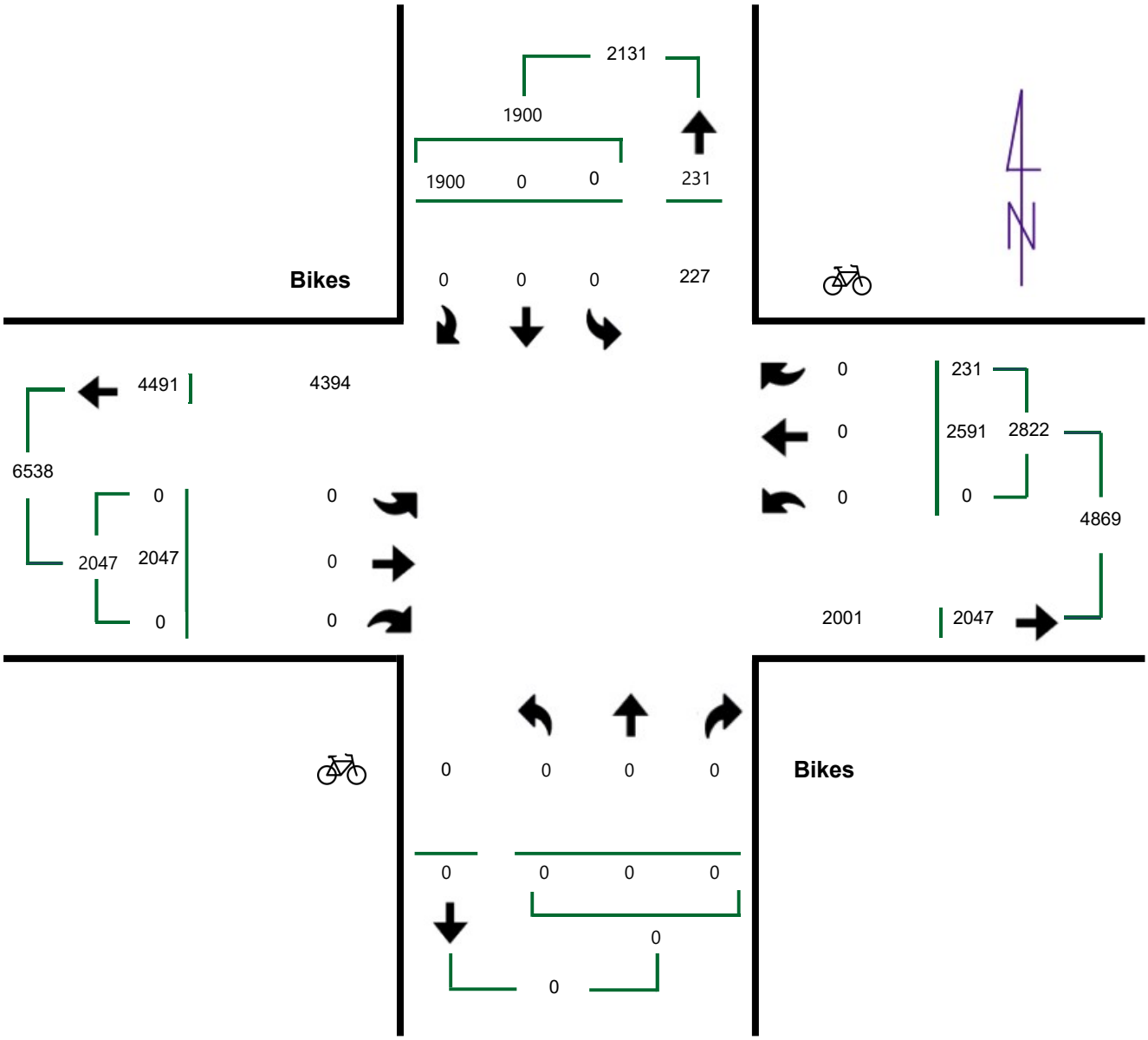
LHRS_Offset: 38480_0000_24T

Count Period: 9/27/2022 03:00 PM to 9/27/2022 06:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

PM Period



Ontario
Ministry of Transportation

TES - Traffic Engineering System

Turning Movement 15 Minute Report

Description: HWY 85 @ NORTHFIELD DR W - RAMP 24

Region WEST **Hwy #:** HWY 85

LHRS_Offset: 38480_0000_24T **Count Period.** 9/27/2022 7:00:00 AM

Count Start Date: 9/27/2022 12:00:00 AM 9/27/2022 6:00:00 PM

Int. Type: T-Intersection

Start Time	North										South										East										West										Total
	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	
	LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT	
07:00	0	0	96	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	62	7	0	2	0	0	8	0	0	0	103	0	0	0	0	0	3	0	0	284
07:15	0	0	108	0	0	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	72	10	0	0	0	0	3	0	0	0	121	0	0	1	0	0	6	0	0	325
07:30	0	0	122	0	0	3	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	73	7	0	2	1	0	8	1	0	0	129	0	0	0	0	0	4	0	0	353
07:45	0	0	185	0	0	7	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	99	7	0	2	0	0	3	0	0	0	158	0	0	1	0	0	7	0	0	470
08:00	0	0	160	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	119	6	0	3	1	0	4	0	0	0	135	0	0	1	0	0	3	0	0	436
08:15	0	0	168	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	124	20	0	4	1	0	3	0	0	0	150	0	0	5	0	0	3	0	0	482
08:30	0	0	203	0	0	3	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	111	10	0	6	1	0	4	0	0	0	187	0	0	3	0	0	5	0	0	537
08:45	0	0	153	0	0	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	117	9	0	3	0	0	3	0	0	0	169	0	0	6	0	0	2	0	0	471
11:00	0	0	87	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	105	10	0	3	0	0	3	0	0	0	129	0	0	5	0	0	4	0	0	352
11:15	0	0	86	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	125	18	0	4	1	0	5	0	0	0	139	0	0	3	0	0	3	0	0	389
11:30	0	0	80	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	126	12	0	7	1	0	5	1	0	0	147	0	0	6	0	0	5	0	0	395
11:45	0	0	100	0	0	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	167	17	0	4	0	0	1	0	0	0	189	0	0	2	0	0	3	0	0	487
12:00	0	0	94	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	168	10	0	3	0	0	3	0	0	0	148	0	0	5	0	0	4	0	0	441
12:15	0	0	100	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	169	10	0	5	0	0	4	0	0	0	175	0	0	2	0	0	4	0	0	473
12:30	0	0	109	0	0	5	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	159	13	0	1	0	0	4	0	0	0	142	0	0	2	0	0	3	0	0	441
12:45	0	0	99	0	0	3	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	176	3	0	0	0	0	2	1	0	0	152	0	0	2	0	0	2	0	0	447
13:00	0	0	103	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	7	0	2	0	0	5	0	0	0	165	0	0	6	0	0	3	0	0	458
13:15	0	0	98	0	0	2	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	179	13	0	8	1	0	2	1	0	0	192	0	0	6	0	0	3	0	0	511
13:30	0	0	91	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	161	12	0	3	0	0	4	0	0	0	117	0	0	3	0	0	4	0	0	397
13:45	0	0	108	0	0	5	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	147	12	0	2	1	0	3	0	0	0	160	0	0	1	0	0	2	0	0	443
15:00	0	0	126	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	178	18	0	3	0	0	3	0	0	0	161	0	0	0	0	0	3	0	0	494

Start Time	North										South										East										West										Total
	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	
	LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		
15:15	0	0	133	0	0	1	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	157	16	0	6	0	0	4	0	0	0	147	0	0	2	0	0	1	0	0	469
15:30	0	0	125	0	0	2	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	209	24	0	3	0	0	3	0	0	0	150	0	0	2	0	0	4	0	0	526
15:45	0	0	170	0	0	1	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	171	18	0	5	0	0	3	0	0	0	179	0	0	1	0	0	3	0	0	557
16:00	0	0	160	0	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	199	17	0	2	1	0	3	0	0	0	148	0	0	3	0	0	4	0	0	543
16:15	0	0	165	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	197	15	0	3	0	0	3	1	0	0	186	0	0	4	0	0	3	0	0	581
16:30	0	0	160	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	285	20	0	2	0	0	3	0	0	0	169	0	0	1	0	0	2	0	0	643
16:45	0	0	184	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	246	25	0	0	0	0	1	0	0	0	204	0	0	1	0	0	2	0	0	664
17:00	0	0	177	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	311	24	0	2	0	0	3	1	0	0	181	0	0	0	0	0	3	0	0	702
17:15	0	0	170	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	246	16	0	3	0	0	2	0	0	0	175	0	0	0	0	0	1	0	0	614
17:30	0	0	167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	186	17	0	0	0	0	2	0	0	0	150	0	0	1	0	0	3	0	0	526
17:45	0	0	129	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	143	17	0	1	1	0	3	0	0	0	151	0	0	0	0	0	2	0	0	450

Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - Full Study

Description: HWY 85 @ NORTHFIELD DR W - RAMP 34

Region WEST

Hwy #: HWY 85

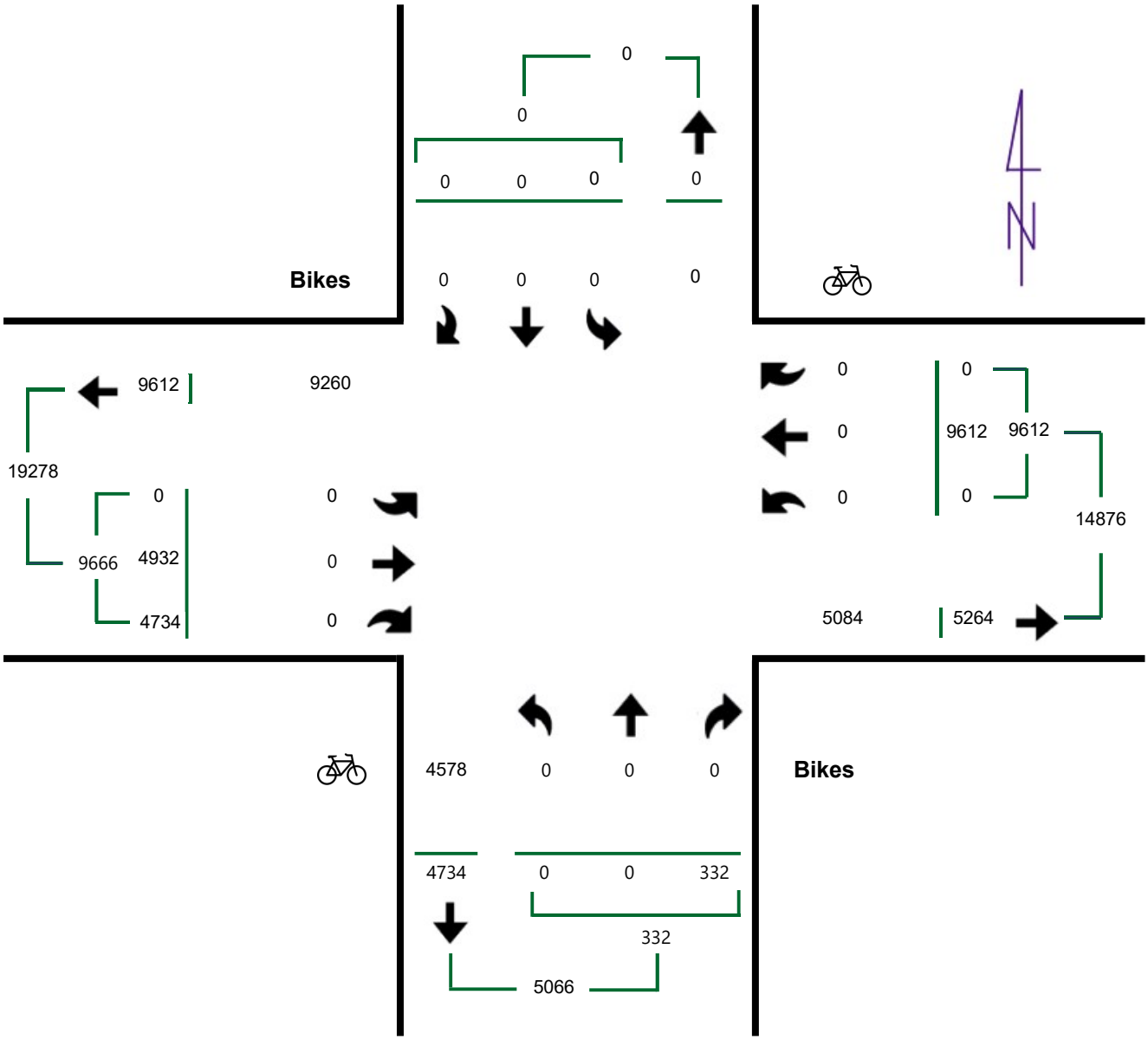
LHRS_Offset: 38480_0000_34T

Count Period: 9/27/2022 07:00 AM to 9/27/2022 06:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

Full Study



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - AM Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 34

Region WEST

Hwy #: HWY 85

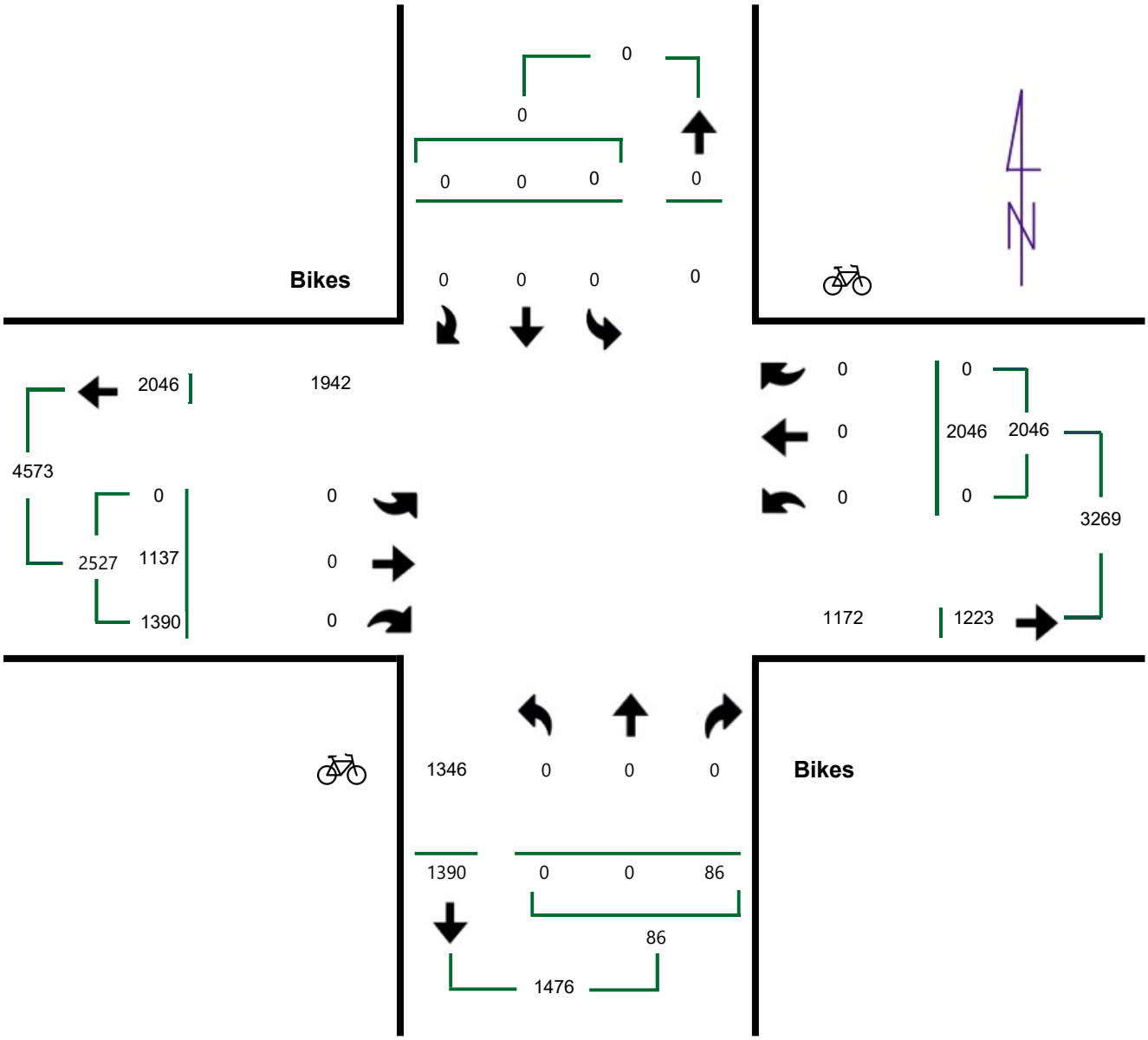
LHRS_Offset: 38480_0000_34T

Count Period: 9/27/2022 07:00 AM to 9/27/2022 09:00 AM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

AM Period



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - MD Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 34

Region WEST

Hwy #: HWY 85

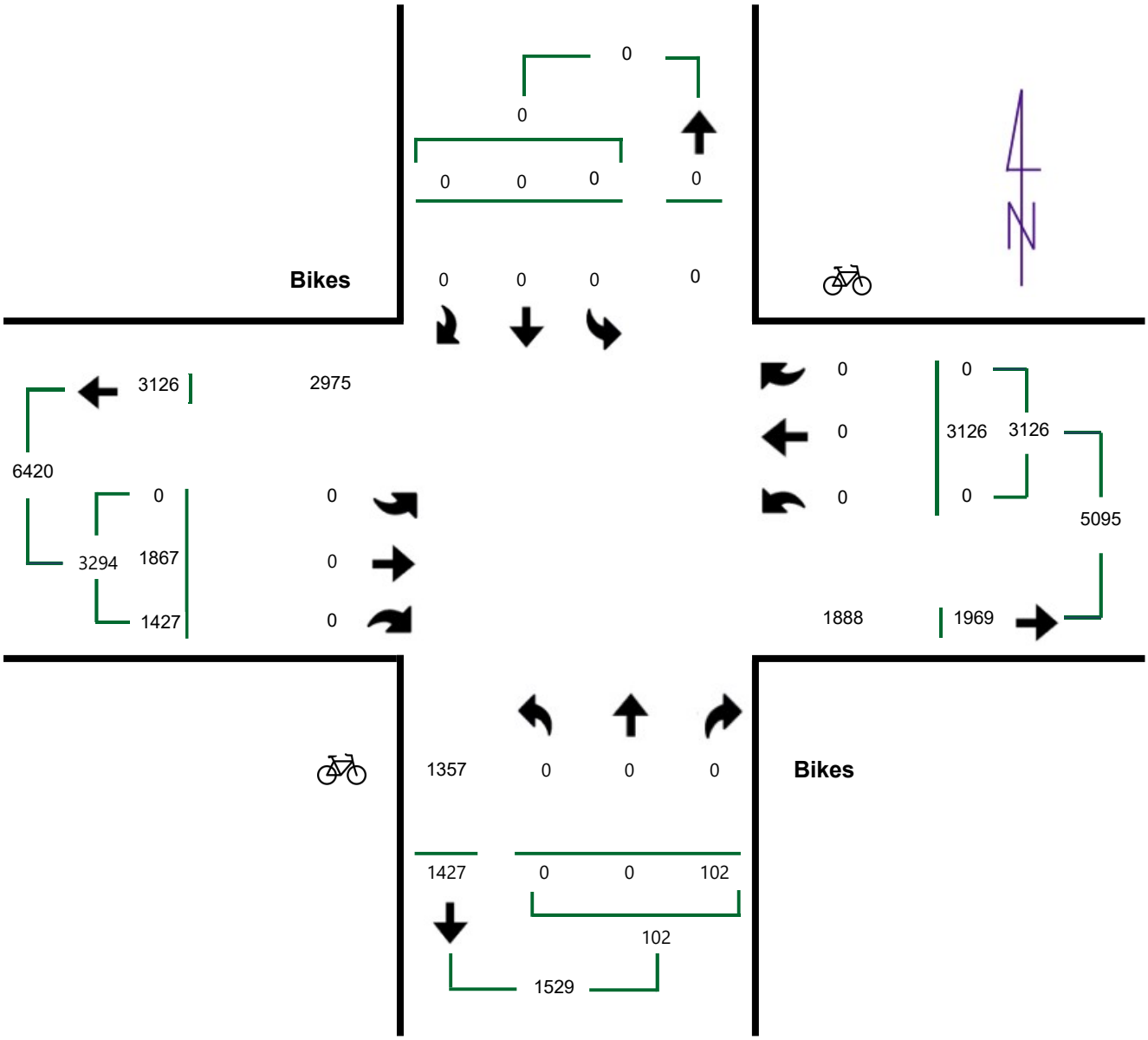
LHRS_Offset: 38480_0000_34T

Count Period: 9/27/2022 11:00 AM to 9/27/2022 02:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

MD Period



Ontario

TES - Traffic Engineering System
Turning Movement Count Period Report (Bikes) - PM Period

Description: HWY 85 @ NORTHFIELD DR W - RAMP 34

Region WEST

Hwy #: HWY 85

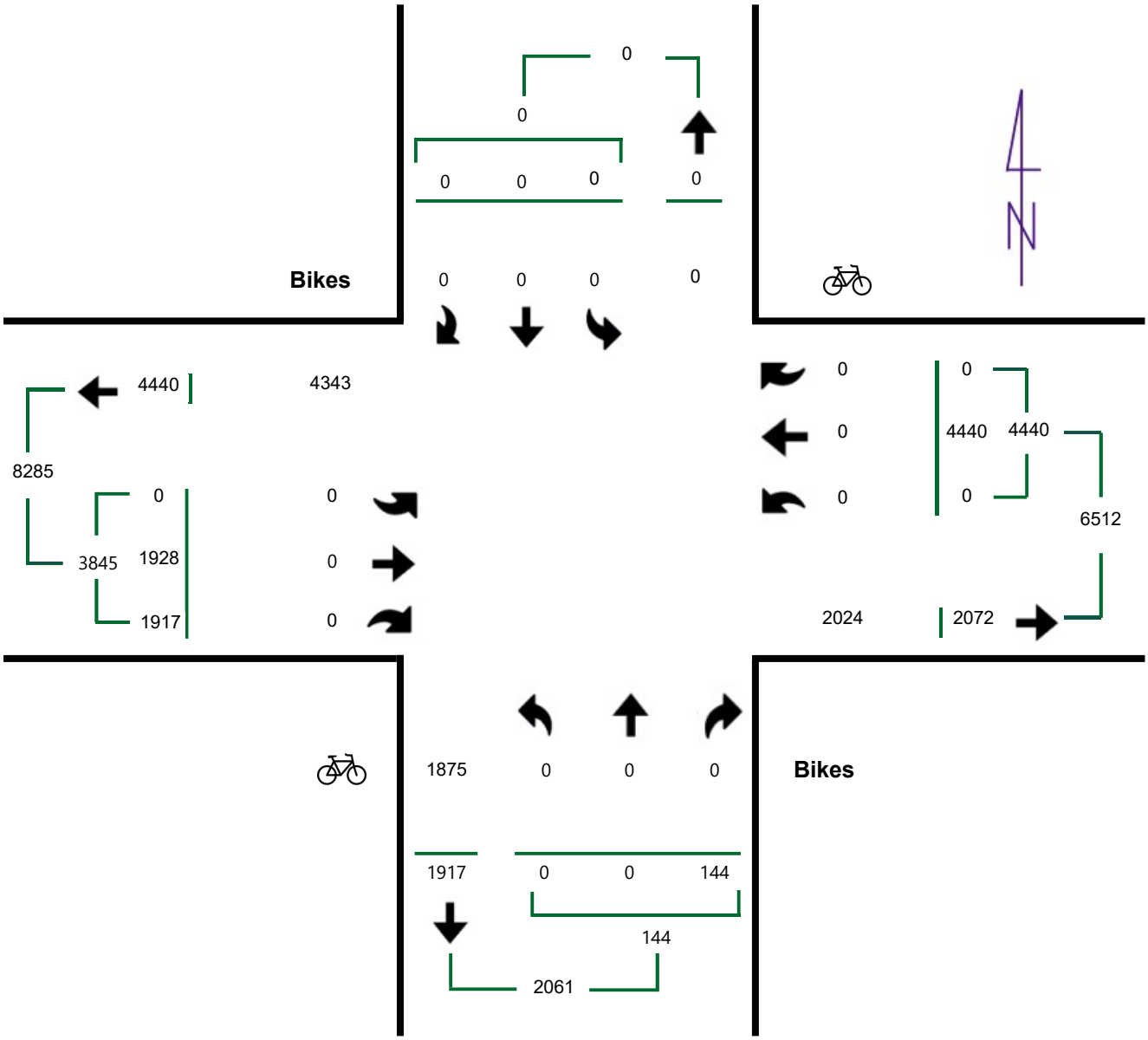
LHRS_Offset: 38480_0000_34T

Count Period: 9/27/2022 03:00 PM to 9/27/2022 06:00 PM

Count Start Date: Tuesday, 27 September, 2022

Int. Type: T-Intersection

PM Period



Ontario
Ministry of Transportation

TES - Traffic Engineering System

Turning Movement 15 Minute Report

Description: HWY 85 @ NORTHFIELD DR W - RAMP 34

Region WEST **Hwy #:** HWY 85

LHRS_Offset: 38480_0000_34T **Count Period.** 9/27/2022 7:00:00 AM

Count Start Date: 9/27/2022 12:00:00 AM 9/27/2022 6:00:00 PM

Int. Type: T-Intersection

Start Time	North										South										East										West										Total
	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	
	LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	1	4	0	154	0	0	3	0	0	10	0	0	0	93	107	0	0	0	0	2	4	0	386
07:15	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	1	0	0	176	0	0	2	0	0	7	0	0	0	119	178	0	0	1	0	6	1	0	498
07:30	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	1	0	0	0	0	0	199	0	0	4	0	0	11	0	0	0	118	196	0	0	1	0	3	1	0	542
07:45	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	3	0	0	271	0	0	9	0	0	5	0	0	0	155	196	0	1	5	0	4	5	0	662
08:00	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	1	0	276	0	0	5	0	0	5	0	0	0	133	182	0	1	3	0	3	4	0	622
08:15	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	288	0	0	6	0	0	4	0	0	0	136	171	0	5	5	0	3	3	0	632
08:30	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	1	0	0	0	0	0	307	0	0	10	0	0	7	0	0	0	182	183	0	2	4	0	5	4	0	717
08:45	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	2	0	0	0	0	0	271	0	0	7	0	0	9	0	0	0	159	133	0	5	1	0	2	2	0	600
11:00	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	2	0	0	0	0	0	189	0	0	6	0	0	6	0	0	0	131	115	0	3	5	0	4	3	0	471
11:15	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	204	0	0	6	0	0	8	0	0	0	128	79	0	3	3	0	3	1	0	442
11:30	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	1	0	0	208	0	0	8	0	0	7	0	0	0	164	163	0	6	0	0	5	6	0	577
11:45	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	266	0	0	8	0	0	3	0	0	0	163	116	0	2	2	0	2	2	0	571
12:00	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	257	0	0	6	0	0	6	0	0	0	155	130	0	4	3	0	4	3	0	575
12:15	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	272	0	0	9	0	0	4	0	0	0	167	91	0	2	4	0	3	0	0	558
12:30	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	1	0	259	0	0	6	0	0	7	0	0	0	153	112	0	2	6	0	3	4	0	561
12:45	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	271	0	0	4	0	0	9	0	0	0	126	96	0	2	1	0	2	3	0	519
13:00	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	1	0	0	0	0	0	268	0	0	4	0	0	6	0	0	0	168	120	0	4	6	0	3	1	0	592
13:15	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	1	0	0	0	1	0	282	0	0	10	0	0	7	0	0	0	176	107	0	4	4	0	3	1	0	605
13:30	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	244	0	0	3	0	0	6	0	0	0	120	133	0	5	3	0	4	4	0	530
13:45	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	255	0	0	7	0	0	5	0	0	0	141	95	0	1	1	0	1	4	0	521
15:00	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	1	0	0	0	1	0	294	0	0	5	0	0	4	0	0	0	154	181	0	0	1	0	3	1	0	657

Start Time	North										South										East										West										Total
	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	
	LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT	LT	TH	RT	
15:15	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	287	0	0	5	0	0	6	0	0	0	147	158	0	2	2	0	1	4	0	621
15:30	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	327	0	0	5	0	0	7	0	0	0	156	172	0	1	0	0	4	2	0	683
15:45	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	1	1	0	347	0	0	6	0	0	9	0	0	0	143	142	0	1	1	0	2	1	0	668
16:00	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	1	1	0	376	0	0	3	0	0	8	0	0	0	154	180	0	3	4	0	3	3	0	740
16:15	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	1	0	0	0	0	0	347	0	0	4	0	0	7	0	0	0	167	156	0	2	3	0	3	1	0	700
16:30	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	433	0	0	1	0	0	4	0	0	0	168	180	0	2	3	0	2	3	0	805
16:45	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	427	0	0	1	0	0	1	0	0	0	175	128	0	1	1	0	2	3	0	762
17:00	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	1	0	0	0	0	0	467	0	0	5	0	0	3	0	0	0	189	199	0	0	3	0	3	1	0	884
17:15	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	2	0	410	0	0	0	0	0	3	0	0	0	157	132	0	0	2	0	1	1	0	725
17:30	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	356	0	0	0	0	0	2	0	0	0	145	147	0	1	0	0	3	1	0	661
17:45	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	272	0	0	3	0	0	5	0	0	0	131	100	0	0	1	0	2	0	0	523

CURRENT TRAFFIC SIGNAL TIMING

INT # **14** **WEBER STREET @ Northfield Drive** T08-50/ **46W**

Date Prepared: **July 11, 2023**

Mode of Control **Fixed Time**

Left Info							
	Actuated	**SB**	LT	-	**Weber Street - Dual LT**	via	**wired 24/7**
	Actuated	**NB**	LT	-	**Weber Street**	via	**phase omit**
	Actuated	**EB**	LT	-	**Northfield Drive**	via	**phase omit**
	Actuated	**WB**	LT	-	**Northfield Drive**	via	**phase omit**

*Offsets are a percentage of the cycle length and refers to the beginning of Main Street green

Pattern 1 06:30 - 09:00 M-F, 07:30 - 14:00 Sat

WEBER STREET								OFFSET	13%
SBL Green Arrow	Min	7.0	seconds	NBL Green Arrow			Min	5.0	seconds
	Ext	3.0	seconds				Ext	3.0	seconds
	Max	16.8	seconds				Max	6.8	seconds
SBL Amber Arrow		4.0	seconds	NBL Amber Arrow				3.0	seconds
All Red		2.0	seconds	All Red				1.0	seconds
Green		30.0	seconds						
Amber		4.0	seconds	Walk	11.0	seconds			
All Red		2.0	seconds	FDW	19.0	seconds			
Northfield Drive									
EBL Green Arrow	Min	5.0	seconds	WBL Green Arrow			Min	5.0	seconds
	Ext	4.0	seconds				Ext	3.0	seconds
	Max	12.8	seconds				Max	8.0	seconds
EBL Amber Arrow		3.0	seconds	WBL Amber Arrow				3.0	seconds
All Red		1.0	seconds	All Red				1.0	seconds
Green		38.4	seconds						
Amber		4.0	seconds	Walk	14.4	seconds			
All Red		2.0	seconds	FDW	24.0	seconds			
TOTAL		120.0	seconds						

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Pattern 2 09:00-15:00, 18:00-22:00 M-F, 14:00-22:00 Sa, 11:00-22:00 Su

WEBER STREET OFFSET 69%

SBL Green Arrow	Min	7.0	seconds	NBL Green Arrow	Min	5.0	seconds
	Ext	3.0	seconds		Ext	3.0	seconds
	Max	14.9	seconds		Max	10.3	seconds
SBL Amber Arrow		4.0	seconds	NBL Amber Arrow		3.0	seconds
All Red		2.0	seconds	All Red		1.0	seconds
Green		29.2	seconds				
Amber		4.0	seconds	Walk 10.2 seconds			
All Red		2.0	seconds	FDW 19.0 seconds			

Northfield Drive

EBL Green Arrow	Min	5.0	seconds	WBL Green Arrow	Min	5.0	seconds
	Ext	4.0	seconds		Ext	3.0	seconds
	Max	12.5	seconds		Max	12.5	seconds
EBL Amber Arrow		3.0	seconds	WBL Amber Arrow		3.0	seconds
All Red		1.0	seconds	All Red		1.0	seconds
Green		31.4	seconds				
Amber		4.0	seconds	Walk 7.4 seconds			
All Red		2.0	seconds	FDW 24.0 seconds			
TOTAL		110.0	seconds				

Pattern 3 15:00 - 18:00 Mon to Fri

WEBER STREET OFFSET 61%

SBL Green Arrow	Min	7.0	seconds	NBL Green Arrow	Min	5.0	seconds
	Ext	3.0	seconds		Ext	3.0	seconds
	Max	20.4	seconds		Max	17.6	seconds
SBL Amber Arrow		4.0	seconds	NBL Amber Arrow		3.0	seconds
All Red		2.0	seconds	All Red		1.0	seconds
Green		27.6	seconds				
Amber		4.0	seconds	Walk 8.6 seconds			
All Red		2.0	seconds	FDW 19.0 seconds			

Northfield Drive

EBL Green Arrow	Min	5.0	seconds	WBL Green Arrow	Min	5.0	seconds
	Ext	4.0	seconds		Ext	3.0	seconds
	Max	9.2	seconds		Max	11.6	seconds
EBL Amber Arrow		3.0	seconds	WBL Amber Arrow		3.0	seconds
All Red		1.0	seconds	All Red		1.0	seconds
Green		38.4	seconds				
Amber		4.0	seconds	Walk 14.4 seconds			
All Red		2.0	seconds	FDW 24.0 seconds			
TOTAL		120.0	seconds				

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Pattern 4 All Other Times

WEBER STREET OFFSET 94%

SBL Green Arrow	Min	7.0	seconds			
	Ext	3.0	seconds			
	Max	13.0	seconds			
SBL Amber Arrow		4.0	seconds			
All Red		2.0	seconds			
Green		31.0	seconds			
Amber		4.0	seconds	Walk	12.0	seconds
All Red		2.0	seconds	FDW	19.0	seconds

Northfield Drive

Green		38.0	seconds			
Amber		4.0	seconds	Walk	14.0	seconds
All Red		2.0	seconds	FDW	24.0	seconds
TOTAL		100.0	seconds			

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Region of Waterloo

CURRENT TRAFFIC SIGNAL TIMING

INT # 15 | WEBER STREET @ Parkside Drive | T08-50/ 48W

Date Prepared: July 11, 2023

Mode of Control FIXED TIME

Left Info

Acuated	NB	LT	-	WEBER STREET
Acuated	SB	LT	-	WEBER STREET

*Offsets are a percentage of the cycle length and refers to the beginning of Main Street green

Pattern 1 07:00 - 10:30 M-F

WEBER STREET						OFFSET	99%
Green	37.2	seconds					
Amber	4.0	seconds	Walk	27.2	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
Parkside Drive							
Green	30.8	seconds					
Amber	4.0	seconds	Walk	20.8	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
TOTAL	80.0	seconds					

Pattern 2 10:30 - 14:30 M-F, 08:00 - 20:00 Sa & Su

WEBER STREET						OFFSET	95%
Green	38.8	seconds					
Amber	4.0	seconds	Walk	28.8	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
Parkside Drive							
Green	29.2	seconds					
Amber	4.0	seconds	Walk	19.2	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
TOTAL	80.0	seconds					

Pattern 3 14:30 - 16:00, 18:00 - 20:00 M-F

WEBER STREET						OFFSET	5%
Green	41.2	seconds					
Amber	4.0	seconds	Walk	31.2	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
Parkside Drive							
Green	26.8	seconds					
Amber	4.0	seconds	Walk	16.8	seconds		
All Red	2.0	seconds	FDW	10.0	seconds		
TOTAL	80.0	seconds					

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Pattern 4 16:00 - 18:00 M-F

WEBER STREET									OFFSET	5%
SBL	Green Arrow	Min	5.0	seconds	NBL	Green Arrow			Min 5.0	seconds
		Ext	3.0	seconds					Ext 3.0	seconds
		Max	5.6	seconds					Max 5.6	seconds
SBL	Amber Arrow		3.0	seconds	NBL	Amber Arrow			3.0	seconds
All Red			1.0	seconds	All Red				1.0	seconds
Green			30.0	seconds						
Amber			4.0	seconds	Walk		20.0	seconds		
All Red			2.0	seconds	FDW		10.0	seconds		
Parkside Drive										
Green			28.4	seconds						
Amber			4.0	seconds	Walk		18.4	seconds		
All Red			2.0	seconds	FDW		10.0	seconds		
TOTAL			80.0	seconds						

Pattern 5 ALL OTHER TIMES

WEBER STREET							OFFSET	36%
Green		33.0	seconds					
Amber		4.0	seconds	Walk	23.0	seconds		
All Red		2.0	seconds	FDW	10.0	seconds		
Parkside Drive								
Green		20.0	seconds					
Amber		4.0	seconds	Walk	10.0	seconds		
All Red		2.0	seconds	FDW	10.0	seconds		
		65.0	seconds					

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

CURRENT TRAFFIC SIGNAL TIMING

INT # **356** | **WEBER STREET @ Randall Street** | T08-50/ **120W**

Date Prepared: **November 27, 2023**

Mode of Control **Semi-Actuated**

Left Info **Actuated** **SB** LT - **WEBER STREET**

Max 1 07:00 - 09:15, 16:00 - 18:00 Monday to Friday

WEBER STREET

SB Green Arrow	Min	5.0	seconds				
	Ext	3.0	seconds				
	Max	15.0	seconds				
SB Amber Arrow		3.0	seconds				
All Red		1.0	seconds				
Green		35.0	seconds				
Amber		4.0	seconds	Walk	25.0	seconds	
All Red		2.0	seconds	FDW	10.0	seconds	

Randall Street

				Pedestrian Call		
Green	Min	8.0	seconds	Green/Walk	7.0	seconds
	Ext	3.0	seconds	Green/FDW	11.0	seconds
	Max	40.0	seconds	Green/SDW	22.0	seconds
Amber		4.0	seconds	Amber	4.0	seconds
All Red		2.0	seconds	All Red	2.0	seconds

Max 2 09:15 - 16:00 Monday to Friday

WEBER STREET

SB Green Arrow	Min	5.0	seconds				
	Ext	3.0	seconds				
	Max	10.0	seconds				
SB Amber Arrow		3.0	seconds				
All Red		1.0	seconds				
Green		35.0	seconds				
Amber		4.0	seconds	Walk	25.0	seconds	
All Red		2.0	seconds	FDW	10.0	seconds	

Randall Street

				Pedestrian Call		
Green	Min	8.0	seconds	Green/Walk	7.0	seconds
	Ext	3.0	seconds	Green/FDW	11.0	seconds
	Max	25.0	seconds	Green/SDW	7.0	seconds
Amber		4.0	seconds	Amber	4.0	seconds
All Red		2.0	seconds	All Red	2.0	seconds

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Max 3 All other Times

WEBER STREET

Green		30.0	seconds			
Amber		4.0	seconds	Walk	20.0	seconds
All Red		2.0	seconds	FDW	10.0	seconds

Randall Street

				Pedestrian Call		
Green	Min	8.0	seconds	Green/Walk	7.0	seconds
	Ext	3.0	seconds	Green/FDW	11.0	seconds
	Max	20.0	seconds	Green/SDW	2.0	seconds
Amber		4.0	seconds	Amber	4.0	seconds
All Red		2.0	seconds	All Red	2.0	seconds

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Region of Waterloo

CURRENT TRAFFIC SIGNAL TIMING

INT # 504 NORTHFIELD DRIVE @ Parkside Drive/Waterloo Corporate Campus T08-50/ 69W

Date Prepared: July 11, 2023

Mode of Control SEMI-ACTUATED

Left Info Actuated WB LT - NORTHFIELD DRIVE

*Offsets are a percentage of the cycle length and refers to the beginning of Main Street green

Max 1 06:30 - 09:00 Monday to Friday

NORTHFIELD DRIVE

WBL	Green Arrow	Min	5.0	seconds				
		Ext	3.0	seconds				
		Max	30.0	seconds				
WBL	Amber Arrow		3.0	seconds				
All Red			1.0	seconds				
Green			40.0	seconds				
Amber			4.0	seconds	Walk	32.0	seconds	
All Red			2.0	seconds	FDW	8.0	seconds	

Parkside Drive/Waterloo Corporate Campus Pedestrian Call

Green	Min	8.0	seconds	Green/Walk	10.0	seconds	
	Ext	3.0	seconds	Green/FDW	18.0	seconds	
	Max	30.0	seconds	Green/SDW	2.0	seconds	
Amber		4.0	seconds	Amber	4.0	seconds	
All Red		2.0	seconds	All Red	2.0	seconds	

Max 2 09:00-16:00, 16:30-22:00 M-F, 07:30-22:00 Sa, 09:00-18:00 Su

NORTHFIELD DRIVE

WBL	Green Arrow	Min	5.0	seconds				
		Ext	3.0	seconds				
		Max	30.0	seconds				
WBL	Amber Arrow		3.0	seconds				
All Red			1.0	seconds				
Green			40.0	seconds				
Amber			4.0	seconds	Walk	32.0	seconds	
All Red			2.0	seconds	FDW	8.0	seconds	

Parkside Drive/Waterloo Corporate Campus Pedestrian Call

Green	Min	8.0	seconds	Green/Walk	10.0	seconds	
	Ext	3.0	seconds	Green/FDW	18.0	seconds	
	Max	30.0	seconds	Green/SDW	2.0	seconds	
Amber		4.0	seconds	Amber	4.0	seconds	
All Red		2.0	seconds	All Red	2.0	seconds	

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Max 3 16:00 - 16:30 Monday to Friday

NORTHFIELD DRIVE

WBL	Green Arrow	Min	5.0	seconds			
		Ext	3.0	seconds			
		Max	30.0	seconds			
WBL	Amber Arrow		3.0	seconds			
All Red			1.0	seconds			
Green			40.0	seconds			
Amber			4.0	seconds	Walk	32.0	seconds
All Red			2.0	seconds	FDW	8.0	seconds

Parkside Drive/Waterloo Corporate Campus

					Pedestrian Call		
Green	Min	8.0	seconds		Green/Walk	10.0	seconds
	Ext	3.0	seconds		Green/FDW	18.0	seconds
	Max	30.0	seconds		Green/SDW	2.0	seconds
Amber		4.0	seconds		Amber	4.0	seconds
All Red		2.0	seconds		All Red	2.0	seconds

Max 1 - WBLT omitted All Other Times

NORTHFIELD DRIVE

Green			40.0	seconds			
Amber			4.0	seconds	Walk	32.0	seconds
All Red			2.0	seconds	FDW	8.0	seconds

Parkside Drive/Waterloo Corporate Campus

					Pedestrian Call		
Green	Min	8.0	seconds		Green/Walk	10.0	seconds
	Ext	3.0	seconds		Green/FDW	18.0	seconds
	Max	30.0	seconds		Green/SDW	2.0	seconds
Amber		4.0	seconds		Amber	4.0	seconds
All Red		2.0	seconds		All Red	2.0	seconds

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

CURRENT TRAFFIC SIGNAL TIMING

INT # **712** **NORTHFIELD DRIVE @ Waterloo Spur** T08-50/ **136W**

Date Prepared: **July 11, 2023**

Mode of Control **Semi-Actuated**

*Offsets are a percentage of the cycle length and refers to the beginning of Main Street green

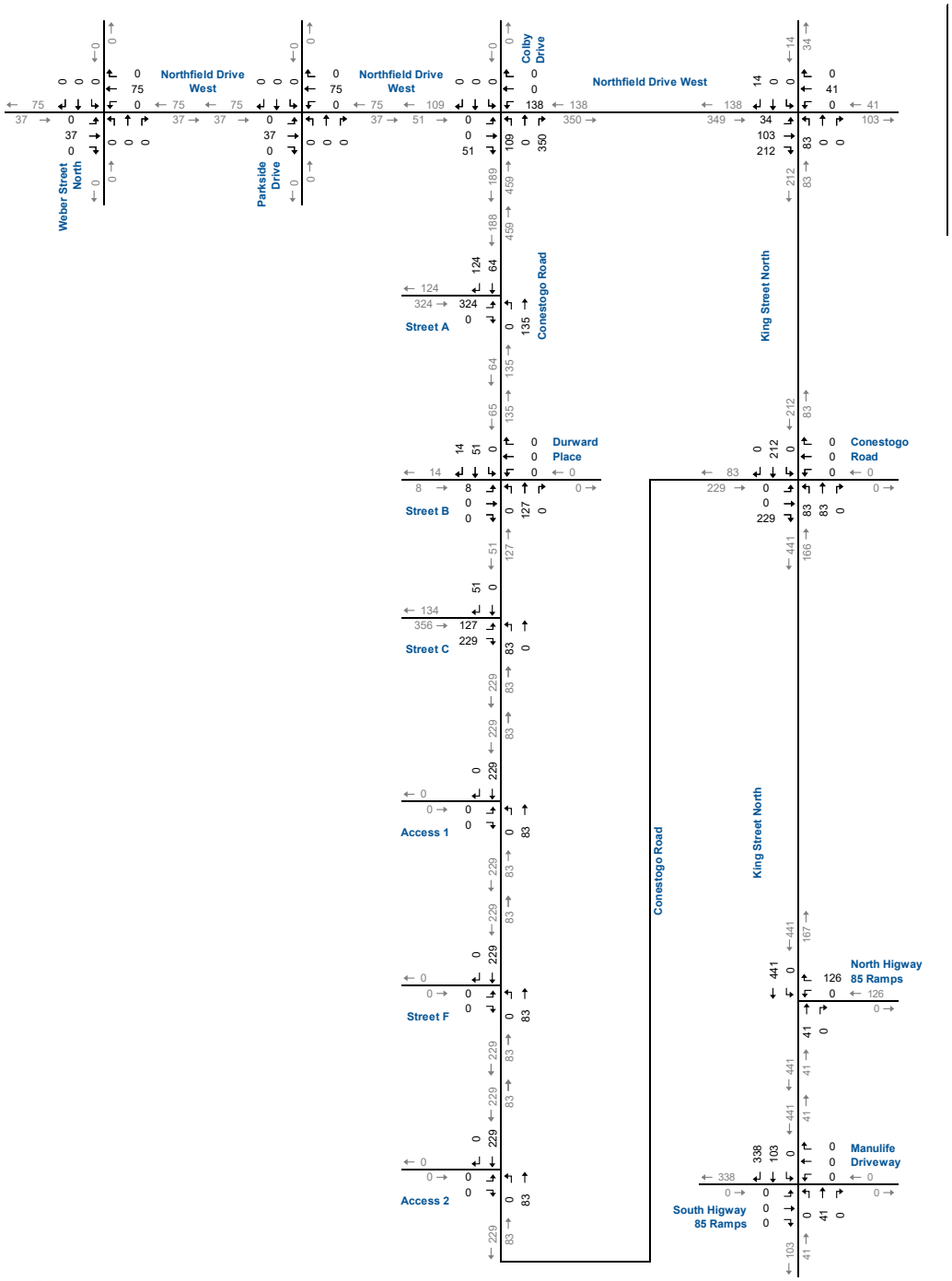
Max 1		07:00 - 21:00 Monday to Friday, 08:30 to 21:00 Saturday, 09:00 to 18:00 Sunday	
Northfield Drive			
Green	Min -	30	seconds
	Ext -	5	seconds
	Max -	50	seconds
Amber		4	seconds
All Red		4	seconds
Waterloo Spur Ped Crossing			
WALK		10	seconds
FDW		18	seconds
SDW		6	seconds
Max 2		All Other Times	
Northfield Drive			
Green	Min -	30	seconds
	Ext -	5	seconds
	Max -	50	seconds
Amber		4	seconds
All Red		4	seconds
Waterloo Spur Ped Crossing			
WALK		10	seconds
FDW		18	seconds
SDW		6	seconds

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

APPENDIX C

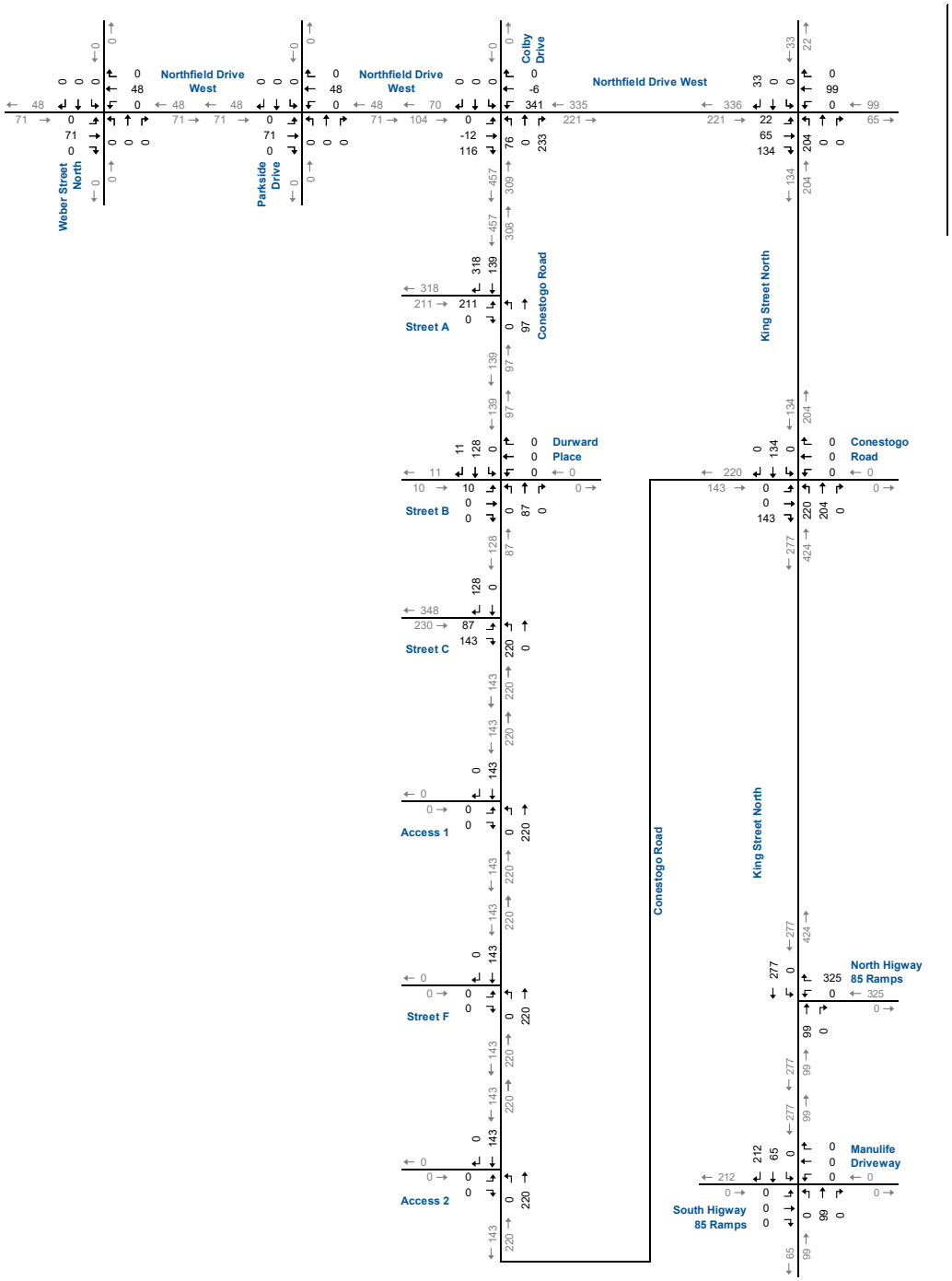
Background Developments



Revised Site-Generated AM Peak Hour Traffic Volumes

562-565 Conestogo Road
220661

Figure 6



Revised Site-Generated PM Peak Hour Traffic Volumes

562-565 Conestogo Road
220661

Figure 7

APPENDIX D

TTS Trip Distribution Data

RESIDENTIAL DISTRIBUTION

AM OUTBOUND

Subject Site lies in TTS Zone 7018

Fri Nov 10 2023 11:50:58 GMT-0500 (Eastern Standard Time) - Run Time: 2777ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 7004, 7008, 7010-7012, 7025-7026, 7028-7029, 7034-7038, 7054, 7062, and
Start time of trip - start_time In 600-900, and
Primary travel mode of trip - mode_prime In D,M,T,P, and
Trip purpose of origin - purp_orig In H, and
2006 GTA zone of destination - gta06_dest In 1-9016, and
Type of dwelling unit - dwell_type In 2)

Waterloo	7001-7576	
Wellesley	Woolwich	Waterloo
	Wilmot	Camrbidge
		Kitchener
Guelph		

Trip 2016
ROW : gta06_orig

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	To	Muncipality			North	South	West	East	North	South	South	North	South	West	East	North	South	South
7004	7025	21	7004	7025	Waterloo	21	West				100%				0	0	0	21	0	0	0
7004	7179	14		7179	Kitchener	14	South						100%		0	0	0	0	0	14	0
7004	7351	21		7351	Cambridge	21	South						100%		0	0	0	0	0	21	0
7004	7572	28		7572	Woolwich	28	West			100%					0	0	28	0	0	0	0
7008	7001	13		7001	Waterloo	13	East				100%				0	0	0	13	0	0	0
7010	7010	22	7010	7010	Waterloo	22	East						100%		0	0	0	0	0	22	0
7010	7016	38		7016	Waterloo	38	East						100%		0	0	0	0	0	38	0
7010	7056	22		7056	Waterloo	22	South		100%						0	22	0	0	0	0	0
7010	7097	24		7097	Kitchener	24	South						100%		0	0	0	0	0	24	0
7012	8351	26	7012	8351	Wellington	26	South						100%		0	0	0	0	0	26	0
7025	7023	18	7025	7023	Waterloo	18	South						100%		0	0	0	0	0	18	0
7025	7536	25		7536	Wellesley	25	West			100%					0	0	25	0	0	0	0
7025	8114	18		8114	Guelph	18	East						100%		0	0	0	0	0	18	0
7029	7020	18	7029	7020	Waterloo	18	South		100%						0	18	0	0	0	0	0
7029	7179	48		7179	Kitchener	48	South						100%		0	0	0	0	0	48	0
7029	7321	38		7321	Cambridge	38	South						100%		0	0	0	0	0	38	0
7029	7387	48		7387	Cambridge	48	South						100%		0	0	0	0	0	48	0
7035	7017	11	7035	7017	Waterloo	11	North	100%							11	0	0	0	0	0	0
7035	7037	19		7037	Waterloo	19	South		100%						0	19	0	0	0	0	0
7035	7248	47		7248	Waterloo	47	West			100%					0	0	47	0	0	0	0
7035	7392	19		7392	Cambridge	19	South						100%		0	0	0	0	0	19	0
7035	8186	38		8186	Guelph	38	East						100%		0	0	0	0	0	38	0
7036	7017	60	7036	7017	Waterloo	60	North	100%							60	0	0	0	0	0	0
7036	7019	30		7019		30								100%	0	0	0	0	0	0	30
7036	7031	38		7031		38	Southwest							100%	0	0	0	0	0	0	38
7036	7033	67		7033		67								100%	0	0	0	0	0	0	67
7036	7106	38		7106		38	South		100%						0	38	0	0	0	0	0
7038	7043	15	7038	7043	Waterloo	15	South							100%	0	0	0	0	0	0	15
7038	7303	48		7303	Cambridge	48	South						100%		0	0	0	0	0	48	0
7054	7007	20	7054	7007	Waterloo	20	East				100%				0	0	0	20	0	0	0
7054	7008	54		7008	Waterloo	54	East				100%				0	0	0	54	0	0	0
7054	7013	32		7013	Waterloo	32	Southeast				100%				0	0	0	32	0	0	0
7054	7042	23		7042	Waterloo	23	South							100%	0	0	0	0	0	0	23
7054	7135	23		7135	Kitchener	23	South						100%		0	0	0	0	0	23	0
7054	7137	19		7137	Kitchener	19	South						100%		0	0	0	0	0	19	0
7054	7190	54		7190	Kitchener	54	South						100%		0	0	0	0	0	54	0
7054	7268	23		7268	Kitchener	23	Southwest			100%					0	0	23	0	0	0	0
						1,120									71	97	123	140	0	516	173
															6%	9%	11%	13%	0%	46%	15%

PM OUTBOUND

Subject Site lies in TTS Zone 7018

Fri Nov 10 2023 12:08:29 GMT-0500 (Eastern Standard Time) - Run Time: 3179ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 7004, 7008-7011, 7025-7026, 7029, 7034-7037, 7050-7051, 7054, and
Start time of trip - start_time In 1500-1900, and
Primary travel mode of trip - mode_prime In D,M,T,P, and
Trip purpose of origin - purp_orig In H, and
2006 GTA zone of destination - gta06_dest In 1-9016, and
Type of dwelling unit - dwell_type In 2)

Waterloo 7001-7576

Trip 2016
ROW : gta06_orig

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	To	Muncipality			North	South	West	East	North	South	South	North	South	West	East	North	South	South
7029	7013	76	7029	7013	Waterloo	76	East				100%				0	0	0	76	0	0	0
7029	7042	48		7042	Waterloo	48	South							100%	0	0	0	0	0	0	48
7029	7141	96		7141	Cambridge	96	South							100%	0	0	0	0	0	96	0
7035	7011	23	7035	7011	Waterloo	23	East				100%				0	0	0	23	0	0	0
7035	7244	21		7244		21	West			100%					0	0	21	0	0	0	0
7035	7348	19		7348	Cambridge	19	South							100%	0	0	0	0	0	19	0
7035	7464	5		7464	Woolwich	5	West			100%					0	0	5	0	0	0	0
7035	7572	26		7572	Woolwich	26	West			100%					0	0	26	0	0	0	0
7036	7018	38	7036	7018		38	South							100%	0	0	0	0	0	0	38
7036	7055	30		7055	Waterloo	30	South		100%						0	30	0	0	0	0	0
7036	7258	23		7258		23	South		100%						0	23	0	0	0	0	0
7051	465	28	7051	465	Toronto	28	East							100%	0	0	0	0	0	28	0
7051	7024	33		7024	Waterloo	33	Southeast							100%	0	0	0	0	0	33	0
7051	7097	27		7097	Kitchener	27	South							100%	0	0	0	0	0	27	0
7051	7168	42		7168	Kitchener	42	South							100%	0	0	0	0	0	42	0
7051	7257	30		7257	Waterloo	30	Southwest			100%					0	0	30	0	0	0	0
7054	7019	23	7054	7019	Waterloo	23	Southwest							100%	0	0	0	0	0	0	23
7054	7024	54		7024	Waterloo	54	Southeast							100%	0	0	0	0	0	54	0
7054	7092	19		7092	Kitchener	19	South							100%	0	0	0	0	0	19	0
7054	7105	11		7105	Waterloo	11	South		50%					50%	0	5	0	0	0	6	0
7054	7137	14		7137	Kitchener	14	South							100%	0	0	0	0	0	14	0
7054	7138	11		7138	Kitchener	11	South							100%	0	0	0	0	0	11	0
7054	7181	13		7181	Kitchener	13	South							100%	0	0	0	0	0	13	0
7054	7532	32		7532	Wellesley	32	West			100%					0	0	32	0	0	0	0
7054	7548	32		7548	Woolwich	32	West			100%					0	0	32	0	0	0	0
						774									0	58	146	99	0	362	109
															0%	7%	19%	13%	0%	47%	14%

Path	AM		PM	
	In	Out	In	Out
Weber St North	0%	6%	6%	0%
Weber St South	7%	9%	9%	7%
Northfield Dr West	19%	11%	11%	19%
Northfield Dr East	13%	13%	13%	13%
Conetoga Pkwy	0%	0%	0%	0%
Conestoga Pkwy	47%	46%	46%	47%
Parkside Dr South	14%	15%	15%	14%

RETAIL DISTRIBUTION

AM INBOUND

Subject Site lies in TTS Zone 7018

Mon Nov 20 2023 14:21:12 GMT-0500 (Eastern Standard Time) - Run Time: 2535ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 1-9016, and
Start time of trip - start_time In 600-900, and
Trip purpose of origin - purp_orig In H, and
Primary travel mode of trip - mode_prime In D,M,T,P, and
2006 GTA zone of destination - gta06_dest In 7008, 7013, 7018)
Waterloo 7001-7576

Trip 2016
ROW : gta06_orig

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	Municipality	To			North	South	West	East	North	South	South	North	South	West	East	North	South	South
3378	7013	17	3378	Peel	7013	17	East						100%		0	0	0	0	0	17	0
3435	7008	14	3435		7008	14	East						100%		0	0	0	0	0	14	0
4186	7008	19	4186	Halton	7008	19	Southeast						100%		0	0	0	0	0	19	0
5147	7008	12	5147	Hamilton	7008	12	Southeast						100%		0	0	0	0	0	12	0
7002	7008	76	7002		7008	76	East				100%				0	0	0	76	0	0	0
7004	7008	44	7004		7008	44	East				100%				0	0	0	44	0	0	0
7005	7008	42	7005		7008	42	East				100%				0	0	0	42	0	0	0
7011	7008	68	7011		7008	68	Southeast				100%				0	0	0	68	0	0	0
7026	7008	27	7026		7008	27	West			100%					0	0	27	0	0	0	0
7028	7008	44	7028		7008	44	West			100%					0	0	44	0	0	0	0
7029	7008	53	7029		7008	53	West			100%					0	0	53	0	0	0	0
7029	7018	20	7029		7018	20	West			100%					0	0	20	0	0	0	0
7034	7013	41	7034		7013	41	Southwest							100%	0	0	0	0	0	0	41
7035	7008	30	7035		7008	30	East							100%	0	0	0	0	0	0	30
7039	7013	35	7039		7013	35	South						100%		0	0	0	0	0	35	0
7054	7008	54	7054		7008	54	South						100%		0	0	0	0	0	54	0
7054	7013	32	7054	Waterloo	7013	32	South						100%		0	0	0	0	0	32	0
7055	7013	10	7055		7013	10	South						100%		0	0	0	0	0	10	0
7057	7008	15	7057		7008	15	South						100%		0	0	0	0	0	15	0
7059	7008	44	7059		7008	44	Southeast						100%		0	0	0	0	0	44	0
7060	7013	10	7060		7013	10	Southeast						100%		0	0	0	0	0	10	0
7069	7013	13	7069		7013	13	Southeast						100%		0	0	0	0	0	13	0
7081	7008	13	7081		7008	13	East						100%		0	0	0	0	0	13	0
7082	7008	18	7082		7008	18	South						100%		0	0	0	0	0	18	0
7082	7018	19	7082		7018	19	South						100%		0	0	0	0	0	19	0
7094	7013	18	7094		7013	18	Southeast						100%		0	0	0	0	0	18	0
7097	7013	5	7097		7013	5	Southeast						100%		0	0	0	0	0	5	0
7102	7008	12	7102		7008	12	South		100%						0	12	0	0	0	0	0
7104	7018	27	7104		7018	27	South		100%						0	27	0	0	0	0	0
7141	7018	67	7141		7018	67	South						100%		0	0	0	0	0	67	0
7157	7013	30	7157		7013	30	South						100%		0	0	0	0	0	30	0
7180	7008	109	7180		7008	109	South						100%		0	0	0	0	0	109	0
7180	7013	16	7180		7013	16	South						100%		0	0	0	0	0	16	0
7187	7008	40	7187	Kitchener	7008	40	South						100%		0	0	0	0	0	40	0
7192	7008	18	7192		7008	18	South						100%		0	0	0	0	0	18	0
7195	7008	69	7195		7008	69	South						100%		0	0	0	0	0	69	0
7212	7008	14	7212		7008	14	South						100%		0	0	0	0	0	14	0
7214	7008	64	7214		7008	64	South						100%		0	0	0	0	0	64	0
7216	7008	62	7216		7008	62	South						100%		0	0	0	0	0	62	0
7246	7008	109	7246		7008	109	West			100%					0	0	109	0	0	0	0
7248	7008	128	7248		7008	128	West			100%					0	0	128	0	0	0	0
7253	7008	25	7253	Waterloo	7008	25	West			100%					0	0	25	0	0	0	0
7257	7013	17	7257		7013	17	Southwest			100%					0	0	17	0	0	0	0
7259	7008	14	7259		7008	14	Southwest			100%					0	0	14	0	0	0	0
7264	7013	45	7264		7013	45	Southwest			100%					0	0	45	0	0	0	0
7282	7013	50	7282		7013	50	Southwest						100%		0	0	0	0	0	50	0
7287	7008	23	7287	Kitchener	7008	23	Southwest						100%		0	0	0	0	0	23	0
7290	7008	23	7290		7008	23	South						100%		0	0	0	0	0	23	0
7312	7013	56	7312		7013	56	South						100%		0	0	0	0	0	56	0
7313	7013	17	7313		7013	17	South						100%		0	0	0	0	0	17	0
7359	7008	14	7359	Cambridge	7008	14	South						100%		0	0	0	0	0	14	0
7373	7008	14	7373		7008	14	South						100%		0	0	0	0	0	14	0
7393	7008	25	7393		7008	25	South						100%		0	0	0	0	0	25	0
7450	7008	5	7450	Wilmot	7008	5	West			100%					0	0	5	0	0	0	0
7466	7013	27	7466	Kitchener	7013	27	South						100%		0	0	0	0	0	27	0
7540	7008	24	7540	Wellesley	7008	24	West			100%					0	0	24	0	0	0	0
7540	7018	16	7540		7018	16	West			100%					0	0	16	0	0	0	0
7545	7013	25	7545		7013	25	West			100%					0	0	25	0	0	0	0
7548	7013	23	7548	Woolwich	7013	23	West			100%					0	0	23	0	0	0	0
7549	7013	30	7549		7013	30	West			100%					0	0	30	0	0	0	0
7565	7013	17	7565		7013	17	West			100%					0	0	17	0	0	0	0
8069	7008	8	8069		7008	8	East						100%		0	0	0	0	0	8	0
8080	7008	25	8080	Guelph	7008	25	East						100%		0	0	0	0	0	25	0
8164	7008	37	8164		7008	37	East						100%		0	0	0	0	0	37	0
8403	7008	12	8403	Orangeville	7008	12	Northeast						100%		0	0	0	0	0	12	0
8949	7008	12	8949	Brantford	7008	12	South						100%		0	0	0	0	0	12	0
8960	7013	11	8960	Brant County	7013	11	South						100%		0	0	0	0	0	11	0
						2,153									0	39	622	230	0	1,191	71
															0%	2%	29%	11%	0%	55%	3%

PM INBOUND

Subject Site lies in TTS Zone 7018

Mon Nov 20 2023 14:28:01 GMT-0500 (Eastern Standard Time) - Run Time: 2895ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 1-9016, and
Start time of trip - start_time In 1600-1900, and
Trip purpose of origin - purp_orig In H, and
Primary travel mode of trip - mode_prime In D,M,T,P, and
2006 GTA zone of destination - gta06_dest In 7008, 7013, 7018)

Trip 2016
ROW : gta06_orig

Waterl 7001-7576

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	To	Municipality			North	South	West	East	North	South	South	North	South	West	East	North	South	South
7002	7008	85	7002	7008		85	East				100%				0	0	0	85	0	0	0
7002	7013	75	7002	7013		75	East				100%				0	0	0	75	0	0	0
7011	7008	21	7011	7008		21	East				100%				0	0	0	21	0	0	0
7012	7013	15	7012	7013		15	East				100%				0	0	0	15	0	0	0
7014	7013	51	7014	7013		51	East				100%				0	0	0	51	0	0	0
7024	7013	33	7024	7013		33	Southeast								0	0	0	0	0	33	0
7025	7008	26	7025	7008		26	East				100%				0	0	0	26	0	0	0
7026	7008	15	7026	7008		15	East				100%				0	0	0	15	0	0	0
7026	7013	19	7026	7013		19	East				100%				0	0	0	19	0	0	0
7028	7008	10	7028	7008		10	East				100%				0	0	0	10	0	0	0
7029	7013	76	7029	7013	Waterloo	76	East				100%				0	0	0	76	0	0	0
7029	7018	112	7029	7018		112	East				100%				0	0	0	112	0	0	0
7036	7018	53	7036	7018		53	Southwest								0	0	0	0	0	0	53
7037	7013	17	7037	7013		17	South		100%						0	17	0	0	0	0	0
7048	7013	40	7048	7013		40	South		100%						0	40	0	0	0	0	0
7055	7013	19	7055	7013		19	South		100%						0	19	0	0	0	0	0
7059	7013	95	7059	7013		95	Southeast								0	0	0	0	0	95	0
7060	7013	28	7060	7013		28	Southeast								0	0	0	0	0	28	0
7062	7008	70	7062	7008		70	East				100%				0	0	0	70	0	0	0
7066	7008	29	7066	7008		29	Southeast				33%				0	0	0	10	0	19	0
7068	7013	8	7068	7013		8	Southeast				33%				0	0	0	3	0	5	0
7082	7013	12	7082	7013	Kitchener	12	Southeast								0	0	0	0	0	12	0
7094	7013	9	7094	7013		9	Southeast								0	0	0	0	0	9	0
7105	7013	26	7105	7013	Waterloo	26	South		100%						0	26	0	0	0	0	0
7110	7013	25	7110	7013		25	South				100%				0	0	25	0	0	0	0
7138	7008	31	7138	7008		31	Southwest								0	0	0	0	0	31	0
7141	7018	34	7141	7018		34	South								0	0	0	0	0	34	0
7146	7013	16	7146	7013	Kitchener	16	South								0	0	0	0	0	16	0
7207	7008	26	7207	7008		26	South								0	0	0	0	0	26	0
7214	7013	82	7214	7013		82	South								0	0	0	0	0	82	0
7245	7008	28	7245	7008		28	West				100%				0	0	0	28	0	0	0
7248	7013	156	7248	7013		156	West				100%				0	0	0	156	0	0	0
7252	7013	66	7252	7013	Waterloo	66	Southwest				100%				0	0	0	66	0	0	0
7255	7008	26	7255	7008		26	Southwest				100%				0	0	0	26	0	0	0
7256	7013	29	7256	7013		29	Southwest				100%				0	0	0	29	0	0	0
7283	7013	11	7283	7013	Kitchener	11	Southwest				100%				0	0	0	11	0	0	0
7359	7013	82	7359	7013	Cambridge	82	South								0	0	0	0	0	82	0
7466	7013	56	7466	7013	Kitchener	56	South								0	0	0	0	0	56	0
7513	7013	5	7513	7013	Wilmot	5	West				100%				0	0	5	0	0	0	0
7560	7013	48	7560	7013	Woolwich	48	West				100%				0	0	48	0	0	0	0
						1665									0	102	394	588	0	528	53
															0%	6%	24%	35%	0%	32%	3%

Path	AM		PM	
	In	Out	In	Out
Weber St North	0%	0%	0%	0%
Weber St South	2%	6%	6%	2%
Northfield Dr West	29%	24%	24%	29%
Northfield Dr East	11%	35%	35%	11%
Conetoga Pkwy	0%	0%	0%	0%
Conestoga Pkwy	55%	32%	32%	55%
Parkside Dr South	3%	3%	3%	3%

EMPLOYMENT DISTRIBUTION

AM INBOUND

Subject Site lies in TTS Zone 7018

Fri Nov 10 2023 12:14:12 GMT-0500 (Eastern Standard Time) - Run Time: 2904ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 1-9016, and
Start time of trip - start_time In 600-900, and
Primary travel mode of trip - mode_prime In D,M,T, and
Trip purpose of destination - purp_dest In W, R, and
2006 GTA zone of destination - gta06_dest In 7017-7019)

Trip 2016
ROW : gta06_orig

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	Municipality	To			North	South	West	East	North	South	South	North	South	West	East	North	South	South
177	7017	22	177			22	East						100%		0	0	0	0	0	22	0
300	7017	27	300	Toronto	7017	27	East						100%		0	0	0	0	0	27	0
319	7017	11	319			11	East						100%		0	0	0	0	0	11	0
443	7019	9	443	Toronto	7019	9	East						100%		0	0	0	0	0	9	0
2448	7017	26	2448	York	7017	26	East						100%		0	0	0	0	0	26	0
3378	7017	26	3378	Peel		26	East						100%		0	0	0	0	0	26	0
3456	7019	18	3456	Peel	7019	18	East						100%		0	0	0	0	0	18	0
3694	7017	8	3694	Peel		8	East						100%		0	0	0	0	0	8	0
4108	7017	17	4108	Halton	7017	17	Southeast						100%		0	0	0	0	0	17	0
5053	7017	19	5053	Hamilton		19	Southeast						100%		0	0	0	0	0	19	0
5158	7017	53	5158			53	Southeast						100%		0	0	0	0	0	53	0
7002	7017	24	7002	Waterloo	7017	24	East				100%				0	0	0	24	0	0	0
7002	7019	22			7019	22					100%				0	0	0	22	0	0	0
7020	7019	23	7020	Waterloo	7019	23	South		100%						0	23	0	0	0	0	0
7022	7017	34	7022	Waterloo	7017	34	South		33%				67%		0	11	0	0	0	23	0
7024	7017	32	7024	Waterloo		32	Southeast				100%				0	0	0	32	0	0	0
7025	7017	66	7025	Waterloo	7017	66	West	75%		25%					50	0	16	0	0	0	0
7025	7019	18			7019	18	West	75%		25%					14	0	4	0	0	0	0
7026	7017	30	7026			30	West			100%					0	0	30	0	0	0	0
7034	7017	15	7034	Waterloo	7017	15	West			100%					0	0	15	0	0	0	0
7035	7017	64	7035			64	Southwest		30%	20%				50%	0	19	13	0	0	0	32
7036	7017	86	7036			86	Southwest							100%	0	0	0	0	0	0	86
7057	7019	23	7057	Waterloo	7019	23	South						100%		0	0	0	0	0	23	0
7062	7017	30	7062	Waterloo	7017	30	East				100%				0	0	0	30	0	0	0
7062	7019	59			7019	59					100%				0	0	0	0	59	0	0
7066	7017	19	7066	Waterloo	7017	19	East				100%				0	0	0	19	0	0	0
7066	7019	9			7019	9					100%				0	0	0	0	9	0	0
7068	7019	71	7068	Kitchener	7019	71	Southeast				33%		67%		0	0	0	0	23	48	0
7082	7018	19	7082	Kitchener	7018	19	South						100%		0	0	0	0	0	19	0
7082	7019	16			7019	16	South						100%		0	0	0	0	0	16	0
7097	7019	27	7097	Kitchener	7019	27	South						100%		0	0	0	0	0	27	0
7098	7017	13	7098			13							100%		0	0	0	0	0	13	0
7100	7017	10	7100	Waterloo	7017	10	South						100%		0	0	0	0	0	10	0
7108	7017	23	7108			23							100%		0	0	0	0	0	23	0
7112	7019	52	7112	Kitchener	7019	52	South		100%						0	52	0	0	0	0	0
7125	7019	22	7125	Kitchener		22	South						100%		0	0	0	0	0	22	0
7128	7017	29	7128		7017	29							100%		0	0	0	0	0	29	0
7134	7019	15	7134		7019	15							100%		0	0	0	0	0	15	0
7150	7017	18	7150	Kitchener	7017	18	South		100%						0	18	0	0	0	0	0
7151	7017	40	7151			40			100%						0	40	0	0	0	0	0
7152	7017	53	7152			53			100%						0	53	0	0	0	0	0
7153	7017	12	7153			12			100%						0	12	0	0	0	0	0
7160	7019	14	7160			14			100%						0	14	0	0	0	0	0
7167	7019	9	7167	Kitchener	7019	9	South		100%						0	9	0	0	0	0	0
7168	7019	14	7168			14			100%						0	14	0	0	0	0	0
7170	7017	24	7170	Kitchener	7017	24	South						100%		0	0	0	0	0	24	0
7171	7019	131	7171	Kitchener	7019	131	South						100%		0	0	0	0	0	131	0
7176	7019	18	7176			18							100%		0	0	0	0	0	18	0
7177	7017	29	7177	Kitchener	7017	29	South						100%		0	0	0	0	0	29	0
7190	7017	39	7190			39							100%		0	0	0	0	0	39	0
7194	7017	39	7194	Kitchener	7017	39	South						100%		0	0	0	0	0	39	0
7194	7019	34			7019	34							100%		0	0	0	0	0	34	0
7207	7019	39	7207	Kitchener	7019	39	South						100%		0	0	0	0	0	39	0
7210	7017	14	7210	Kitchener	7017	14	South						100%		0	0	0	0	0	14	0
7211	7017	12	7211			12							100%		0	0	0	0	0	12	0
7212	7017	33	7212			33							100%		0	0	0	0	0	33	0
7212	7019	33	7212	Kitchener	7019	33	South						100%		0	0	0	0	0	33	0
7214	7017	48	7214	Kitchener	7017	48	South						100%		0	0	0	0	0	48	0
7222	7017	58	7222			58							100%		0	0	0	0	0	58	0
7233	7017	10	7233			10							100%		0	0	0	0	0	10	0
7246	7017	35	7246	Waterloo	7017	35	West			100%					0	0	35	0	0	0	0
7248	7017	10	7248			10				100%					0	0	10	0	0	0	0
7252	7017	22	7252	Waterloo	7017	22	Southwest			100%					0	0	22	0	0	0	0
7253	7017	15	7253			15				100%					0	0	15	0	0	0	0
7253	7019	27	7253	Waterloo	7019	27	Southwest			100%					0	0	27	0	0	0	0
7254	7017	17	7254			17				100%					0	0	17	0	0	0	0
7255	7017	8	7255	Waterloo	7017	8	Southwest			100%					0	0	8	0	0	0	0
7256	7017	9	7256			9				100%					0	0	9	0	0	0	0
7259	7019	18	7259	Waterloo	7019	18	Southwest			100%					0	0	18	0	0	0	0
7260	7019	26	7260	Kitchener		26	Southwest			100%					0	0	26	0	0	0	0
7262	7017	12	7262	Kitchener	7017	12	Southwest			100%					0	0	12	0	0	0	0
7264	7019	15	7264	Kitchener	7019	15	Southwest			100%					0	0	15	0	0	0	0
7272	7017	17	7272	Kitchener	7017	17	Southwest			100%					0	0	17	0	0	0	0
7272	7019	13		Kitchener	7019	13	Southwest			100%					0	0	13	0	0	0	0
7278	7017	109	7278	Kitchener	7017	109	Southwest			100%					0	0	109	0	0	0	0
7282	7017	27	7282	Kitchener	7017	27	Southwest			100%					0	0	27	0	0	0	0
7283	7017	28	7283			28				100%					0	0	28	0	0	0	0
7287	7017	21	7287			21				100%					0	0	21	0	0	0	0
7293	7019	10	7293	Kitchener	7019	10	South		100%						0	10	0	0	0	0	0
7296	7017	20	7296	Kitchener	7017	20	South			100%					0	0	20	0	0	0	0
7296	7019	24			7019	24				100%					0	0	24	0	0	0	0
7324	7017	28	7324	Cambridge	7017	28	South						100%		0	0	0	0	0	28	0
7361	7019	21	7361	Cambridge		21	South						100%		0	0	0	0	0	21	0
7362	7019	7	7362		7019	7							100%		0	0	0	0	0	7	0
7381	7019	17	7381			17							100%		0	0	0	0	0	17	0
7394	7017	20	7394	Cambridge	7017	20	South						100%		0	0	0	0	0	20	0
7397	7019	37	7397	Cambridge	7019	37	South						100%		0	0	0	0	0	37	0
7404	7017	6	7040	Waterloo		6	Southwest			100%					0	0	6	0	0	0	0
7415	7019	9	7415	Cambridge	7017	9	South						100%		0	0	0	0	0	9	0
7451	7017	12	7451	Wellesley		12	West			100%			0%		0	0	12	0	0	0	0
7479	7017	19	7479	Cambridge		19	South						100%		0	0	0	0	0	19	0
7483	7019	38	7483	Cambridge	7019	38	South						100%		0	0	0	0	0	38	0
7494	7017	27	7494	orth Dumfrie		27	South						100%		0	0	0	0	0	27	0
7506	7017	16	7506	Wilmot	7017	16	West			100%					0	0	16	0	0	0	0
7514	7017	12	7514	Wilmot		12	West			100%					0	0	12	0	0	0	0
7520	7017	14	7520	Wilmot		14	West			100%					0	0	14	0	0	0	0
7523	7019	13	7523	Wilmot	7019	13	West			100%					0	0	13	0	0	0	0
7536	7019	30	7536	Wellesley		30	West			100%					0	0	30	0	0	0	0
7540	7018	16	7540	Wellesley	7018	16	West			100%					0	0	16	0	0	0	0
7548	7019	15	7548	Woolwich	7019	15	West			100%					0	0	15	0	0	0	0
7549	7019	24	7549	Woolwich		24	West			100%					0	0	24	0	0	0	0
7560	7017	48	7560	Woolwich	7017	48	West			100%					0	0	48	0	0	0	0
7562	7019	30	7562	Woolwich	7019	30	West			100%					0	0	30	0	0	0	0
8021	7018	13	8021	Guelph	7018	13	South						100%		0	0	0	0	0	13	0
8024	7017	14	8024	Guelph	7017	14	East						100%		0	0	0	0	0	14	0
8024	7019	13			7019	13	East						100%		0	0	0	0	0	13	0
8047	7019	21	8047	Guelph	7019	21	East						100%		0	0	0	0	0	21	0
8072	7017	12	8072	Guelph	7017	12	East						100%		0	0	0	0	0	12	0
8072	7019	14			7019	14	East						100%		0	0	0	0	0	14	0
8123	7019	13	8123	Guelph	7019	13	East						100%		0	0	0	0	0	13	0
8139	7019	8	8139	Guelph		8	East						100%		0	0	0	0	0	8	0
8351	7017	29	8351	Wellington	7017	29	South						100%		0	0	0	0	0	29	0
8417	7019	5	8417	Dufferin	7019	5	Northeast						100%		0	0	0	0	0	5	0
8951	7019	26	8951	Brant		26	Southwest						100%		0	0	0	0	0	26	0
						2,918									64	275	787	218	0	1,456	118
															2%	9%	27%	8%	0%	50%	4%

AM OUTBOUND

Subject Site lies in TTS Zone 7018

Fri Nov 10 2023 12:22:41 GMT-0500 (Eastern Standard Time) - Run Time: 2717ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of origin - gta06_orig In 7003, 7007-7010, 7013, 7015-7021, 7031, and
Start time of trip - start_time In 600-900, and
Primary travel mode of trip - mode_prime In D,M,T, and
Trip purpose of destination - purp_dest In W, R, and
2006 GTA zone of destination - gta06_dest In 1-9016)

Trip 2016
ROW : gta06_orig

COLUMN : gta06_dest			Zone			Value	General Direction	Path							Value						
								Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr	Weber St N		Northfield Dr W		Conestoga Parkway		Parkside Dr
gta06_orig	gta06_dest	total	From	Municipality	To			North	South	West	East	North	South	South	North	South	West	East	North	South	South
7007	5036	18																			
7007	7042	10	5036	Hamilton	18	Southeast							100%		0	0	0	0	0	18	0
7007	7108	31	7042	Waterloo	10	South				100%					0	0	10	0	0	0	0
7007	7157	12	7108		31				100%						0	31	0	0	0	0	0
7007	7395	17	7157	Kitchener	12	South							100%		0	0	0	0	0	12	0
7008	7001	13	7395	Cambridge	17	South							100%		0	0	0	0	0	17	0
7008	7007	32	7001	Waterloo	13	East						100%			0	0	0	13	0	0	0
7008	7014	13	7007		32							100%			0	0	0	32	0	0	0
7008	7093	34	7014		13							100%			0	0	0	13	0	0	0
7008	7112	53	7093	Kitchener	34	Southeast							100%		0	0	0	0	0	34	0
7008	8187	21	7112	Kitchener	53				50%	50%					0	26	27	0	0	0	0
7009	7207	7	8187	Guelph	21	East							100%		0	0	0	0	0	21	0
7010	7016	38	7207	Kitchener	7	South							100%		0	0	0	0	0	7	0
7010	7056	22	7016	Waterloo	38	East							100%		0	0	0	0	0	38	0
7010	7097	24	7056	Waterloo	22	South			100%						0	22	0	0	0	0	0
7013	7236	20	7097	Kitchener	24	South							100%		0	0	0	0	0	24	0
7015	378	19	7236	Kitchener	20	South							100%		0	0	0	0	0	20	0
7015	7136	35	378	Toronto	19	East							100%		0	0	0	0	0	19	0
7016	7198	51	7136	Kitchener	35	South			50%						0	18	0	0	0	17	0
7019	7001	48	7198	Kitchener	51	Southeast							100%		0	0	0	0	0	51	0
7019	7009	16	7001	Waterloo	48	East						100%			0	0	0	48	0	0	0
7019	7043	82	7009		16							100%			0	0	0	16	0	0	0
7019	7134	15	7043	Waterloo	82	South								100%	0	0	0	0	0	0	82
7019	8052	24	7134	Kitchener	15				50%						0	8	0	0	0	7	0
7020	7019	23	8052	Guelph	24	East							100%		0	0	0	0	0	24	0
7021	7001	29	7019	Waterloo	23	Southwest			50%				50%		0	12	0	0	0	11	0
7021	7053	14	7001	Waterloo	29	East						100%			0	0	0	29	0	0	0
7021	7141	27	7053		14	South			100%						0	14	0	0	0	0	0
7021	7233	26	7141	Cambridge	27	South							100%		0	0	0	0	0	27	0
7021	7304	22	7233	Kitchener	26	South							100%		0	0	0	0	0	26	0
7021	7505	13	7304	Cambridge	22	South							100%		0	0	0	0	0	22	0
7031	7031	31	7505	Wilmot	13	West				100%					0	0	13	0	0	0	0
7031	7042	33	7031	Waterloo	31	South								100%	0	0	0	0	0	0	31
7031	7117	30	7042	Waterloo	33	South				100%					0	0	33	0	0	0	0
			7117	Waterloo	30	South			60%				40%		0	18	0	0	0	12	0
					903										0	149	83	151	0	407	113
															0%	17%	8%	17%	0%	45%	13%

Path	AM		PM	
	In	Out	In	Out
Weber St North	2%	0%	0%	2%
Weber St South	9%	17%	17%	9%
Northfield Dr West	27%	8%	8%	27%
Northfield Dr East	8%	17%	17%	8%
Conestoga Pkwy North	0%	0%	0%	0%
Conestoga Pkwy South	50%	45%	45%	50%
Parkside Dr South	4%	13%	13%	4%

APPENDIX E

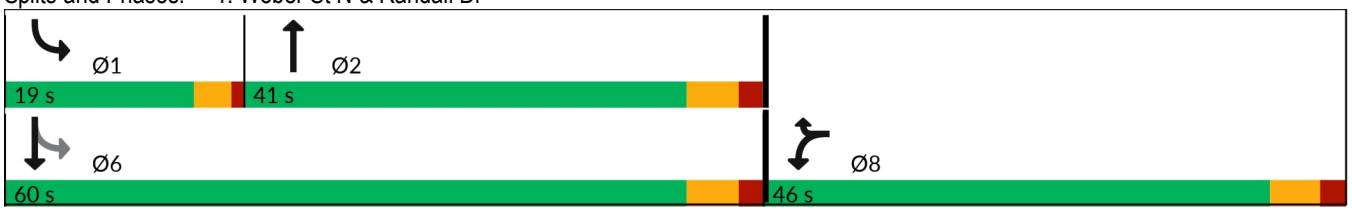
Existing Intersection Capacity Analysis

Weekday AM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	72	24	270	45	399
Future Volume (vph)	72	24	270	45	399
Lane Group Flow (vph)	72	24	378	45	399
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.33	0.10	0.31	0.06	0.28
Control Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Length 50th (m)	9.8	0.0	23.4	1.4	15.1
Queue Length 95th (m)	21.5	6.1	45.9	4.3	30.5
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	767	788	1199	777	1400
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.32	0.06	0.29

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randall Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	24	270	108	45	399
Future Volume (vph)	72	24	270	108	45	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1684		1605	1773
Flt Permitted	0.95	1.00	1.00		0.47	1.00
Satd. Flow (perm)	1394	1413	1684		795	1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	24	270	108	45	399
RTOR Reduction (vph)	0	21	7	0	0	0
Lane Group Flow (vph)	72	3	371	0	45	399
Confl. Peds. (#/hr)				6	6	
Heavy Vehicles (%)	28%	13%	7%	5%	11%	6%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	8.1	8.1	51.3		59.1	59.1
Effective Green, g (s)	10.1	10.1	53.3		59.1	61.1
Actuated g/C Ratio	0.13	0.13	0.67		0.75	0.77
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	180	1133		632	1367
v/s Ratio Prot	c0.05	0.00	c0.22		0.00	c0.23
v/s Ratio Perm					0.05	
v/c Ratio	0.40	0.01	0.32		0.07	0.29
Uniform Delay, d1	31.7	30.2	5.4		2.9	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.0	0.7		0.0	0.5
Delay (s)	33.3	30.2	6.2		2.9	3.2
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	32.5		6.2			3.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

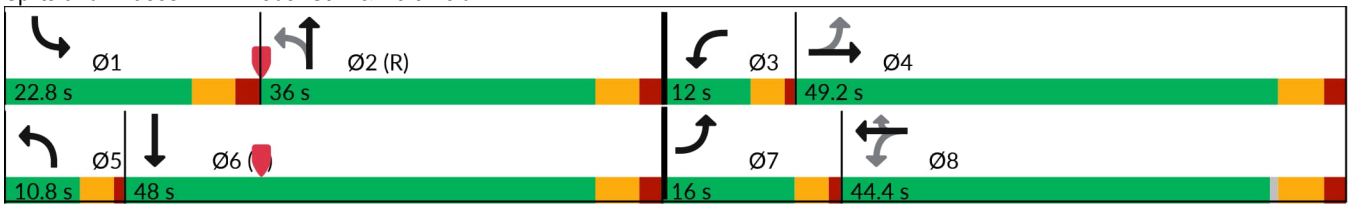
c Critical Lane Group

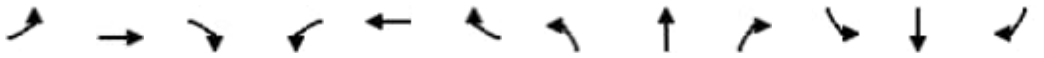
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	144	806	68	388	122	31	110	161	254
Future Volume (vph)	144	806	68	388	122	31	110	161	254
Lane Group Flow (vph)	144	890	68	388	122	31	209	161	308
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.5	44.4	9.0	44.4	44.4	9.5	36.0	13.0	36.0
Total Split (s)	16.0	49.2	12.0	44.4	44.4	10.8	36.0	22.8	48.0
Total Split (%)	13.3%	41.0%	10.0%	37.0%	37.0%	9.0%	30.0%	19.0%	40.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
v/c Ratio	0.33	0.73	0.34	0.34	0.21	0.09	0.24	0.34	0.26
Control Delay (s/veh)	20.3	36.0	22.5	30.3	2.8	19.9	18.6	47.4	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.3	36.0	22.5	30.3	2.8	19.9	18.6	47.4	25.1
Queue Length 50th (m)	19.9	97.6	9.0	37.4	0.0	4.2	10.9	18.5	25.6
Queue Length 95th (m)	33.2	122.6	17.6	51.2	7.5	10.1	21.3	29.4	37.1
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	430	1219	198	1136	572	340	848	471	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.73	0.34	0.34	0.21	0.09	0.25	0.34	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15.6 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Pretimed

Splits and Phases: 2: Weber St N & Northfield Dr W





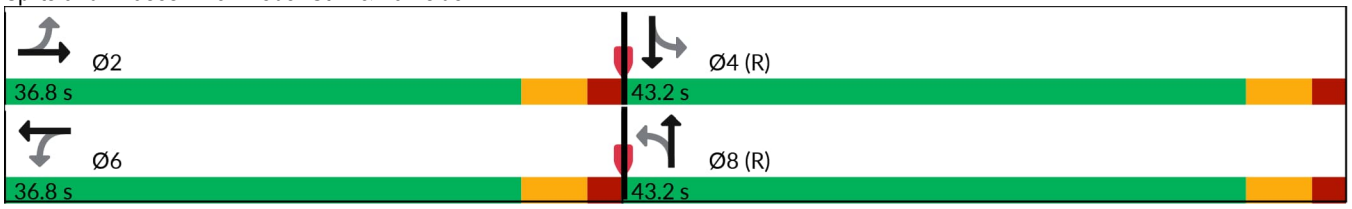
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	806	84	68	388	122	31	110	99	161	254	54
Future Volume (vph)	144	806	84	68	388	122	31	110	99	161	254	54
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3218		1555	3310	1371	1590	2908		3010	3135	
Flt Permitted	0.40	1.00		0.17	1.00	1.00	0.56	1.00		0.95	1.00	
Satd. Flow (perm)	703	3218		279	3310	1371	945	2908		3010	3135	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	806	84	68	388	122	31	110	99	161	254	54
RTOR Reduction (vph)	0	7	0	0	0	80	0	73	0	0	15	0
Lane Group Flow (vph)	144	883	0	68	388	42	31	136	0	161	293	0
Confl. Peds. (#/hr)	3		16	16		3	16		14	14		16
Heavy Vehicles (%)	0%	2%	1%	6%	7%	4%	3%	7%	3%	8%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	55.2	43.2		47.2	39.2	39.2	36.8	30.0		16.8	42.0	
Effective Green, g (s)	55.2	45.2		47.2	41.2	41.2	36.8	32.0		18.8	44.0	
Actuated g/C Ratio	0.46	0.38		0.39	0.34	0.34	0.31	0.27		0.16	0.37	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	419	1212		194	1136	470	326	775		471	1149	
v/s Ratio Prot	c0.03	c0.27		0.02	0.12		0.01	0.05		c0.05	c0.09	
v/s Ratio Perm	0.12			0.11		0.03	0.02					
v/c Ratio	0.34	0.72		0.35	0.34	0.08	0.09	0.17		0.34	0.25	
Uniform Delay, d1	19.6	32.1		24.6	29.3	26.6	29.4	33.8		45.0	26.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	3.8		4.9	0.8	0.3	0.5	0.4		1.9	0.5	
Delay (s)	21.8	35.9		29.6	30.1	27.0	29.9	34.3		47.0	27.0	
Level of Service	C	D		C	C	C	C	C		D	C	
Approach Delay (s/veh)		34.0			29.4			33.7			33.9	
Approach LOS		C			C			C			C	

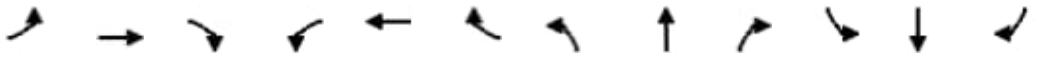
Intersection Summary			
HCM 2000 Control Delay (s/veh)	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	62	166	76	191	16	165	30	290
Future Volume (vph)	62	166	76	191	16	165	30	290
Lane Group Flow (vph)	62	215	76	204	0	253	0	406
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (%)	46.0%	46.0%	46.0%	46.0%	54.0%	54.0%	54.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0		-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.15	0.33	0.20	0.30		0.19		0.30
Control Delay (s/veh)	16.2	16.0	17.0	17.1		8.5		11.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay (s/veh)	16.2	16.0	17.0	17.1		8.5		11.0
Queue Length 50th (m)	6.1	20.1	7.6	20.8		7.9		16.2
Queue Length 95th (m)	14.2	36.7	17.1	36.8		14.6		25.5
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0					
Base Capacity (vph)	404	648	378	664		1280		1350
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.15	0.33	0.20	0.31		0.20		0.30

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42.7 (53%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Future Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99			1.00	
Frt	1.00	0.96		1.00	0.99			0.95			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1587	1549		1516	1615			2743			2922	
Flt Permitted	0.59	1.00		0.57	1.00			0.92			0.91	
Satd. Flow (perm)	987	1549		922	1615			2539			2695	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	166	49	76	191	13	16	165	72	30	290	86
RTOR Reduction (vph)	0	14	0	0	3	0	0	37	0	0	30	0
Lane Group Flow (vph)	62	201	0	76	201	0	0	216	0	0	376	0
Confl. Peds. (#/hr)	1		13	13		1	3					3
Heavy Vehicles (%)	5%	1%	2%	8%	0%	0%	0%	7%	10%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.8	30.8		30.8	30.8			37.2			37.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8			39.2			39.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.49			0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	404	635		378	662			1244			1320	
v/s Ratio Prot		c0.13			0.12							
v/s Ratio Perm	0.06			0.08				0.09			c0.14	
v/c Ratio	0.15	0.31		0.20	0.30			0.17			0.28	
Uniform Delay, d1	14.8	16.0		15.1	15.9			11.3			12.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	1.3		1.1	1.1			0.3			0.5	
Delay (s)	15.6	17.3		16.3	17.0			11.6			12.6	
Level of Service	B	B		B	B			B			B	
Approach Delay (s/veh)		16.9			16.8			11.6			12.6	
Approach LOS		B			B			B			B	

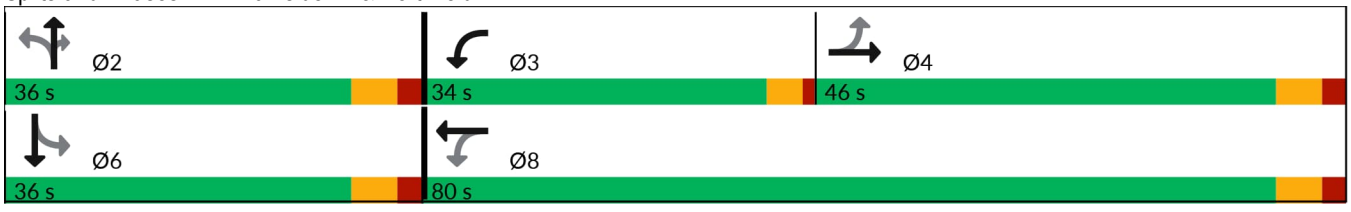
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

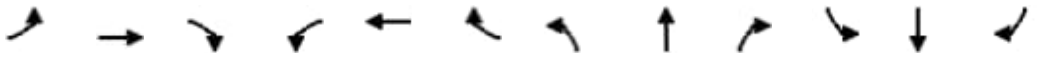
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1049	393	611	16	8	215	45	10
Future Volume (vph)	2	1049	393	611	16	8	215	45	10
Lane Group Flow (vph)	2	1073	393	667	0	24	215	45	11
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	40.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	46.0	46.0	34.0	80.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	39.7%	39.7%	29.3%	69.0%	31.0%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.90	0.89	0.33		0.06	0.38	0.12	0.02
Control Delay (s/veh)	24.0	46.0	53.1	9.2		31.5	6.5	32.3	29.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.0	46.0	53.1	9.2		31.5	6.5	32.3	29.1
Queue Length 50th (m)	0.3	126.7	71.0	32.7		4.2	0.0	8.0	1.7
Queue Length 95th (m)	2.2	#175.2	#121.6	42.7		11.3	18.5	17.8	6.4
Internal Link Dist (m)		123.1		82.8		475.0			54.4
Turn Bay Length (m)	35.0		25.0					30.0	
Base Capacity (vph)	262	1180	497	2121		362	557	361	394
Starvation Cap Reductn	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.01	0.91	0.79	0.31		0.07	0.39	0.12	0.03

Intersection Summary
Cycle Length: 116
Actuated Cycle Length: 111.9
Natural Cycle: 100
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1049	24	393	611	56	16	8	215	45	10	1
Future Volume (vph)	2	1049	24	393	611	56	16	8	215	45	10	1
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.98	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1662	3135		1635	3109			1390	1408	1614	1372	
Flt Permitted	0.39	1.00		0.09	1.00			0.87	1.00	0.74	1.00	
Satd. Flow (perm)	697	3135		156	3109			1263	1408	1260	1372	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	1049	24	393	611	56	16	8	215	45	10	1
RTOR Reduction (vph)	0	1	0	0	6	0	0	0	153	0	1	0
Lane Group Flow (vph)	2	1072	0	393	661	0	0	24	62	45	10	0
Confl. Peds. (#/hr)	6		18	18		6	10		3	3		10
Heavy Vehicles (%)	0%	5%	8%	2%	5%	13%	0%	38%	2%	4%	20%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	40.1	40.1		69.8	69.8			30.1	30.1	30.1	30.1	
Effective Green, g (s)	42.1	42.1		69.8	71.8			32.1	32.1	32.1	32.1	
Actuated g/C Ratio	0.38	0.38		0.62	0.64			0.29	0.29	0.29	0.29	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	262	1179		436	1994			362	403	361	393	
v/s Ratio Prot		0.34		c0.21	0.21						0.01	
v/s Ratio Perm	0.00			c0.35				0.02	c0.04	0.04		
v/c Ratio	0.00	0.90		0.90	0.33			0.06	0.15	0.12	0.02	
Uniform Delay, d1	21.8	33.0		32.3	9.1			29.0	29.7	29.5	28.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	10.2		21.3	0.0			0.3	0.8	0.7	0.1	
Delay (s)	21.8	43.3		53.7	9.2			29.3	30.5	30.2	28.7	
Level of Service	C	D		D	A			C	C	C	C	
Approach Delay (s/veh)		43.2			25.7			30.4			29.9	
Approach LOS		D			C			C			C	

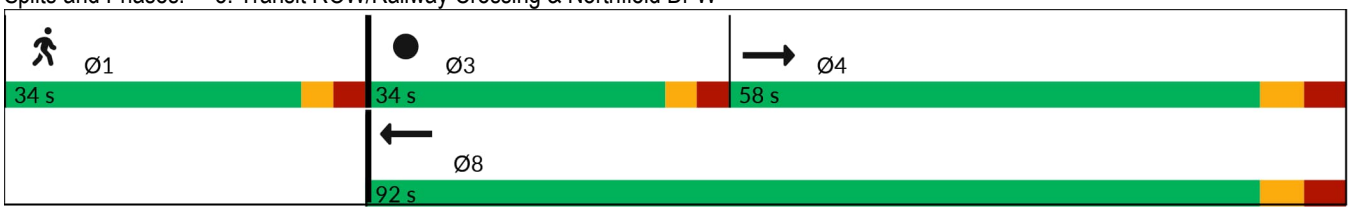
Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

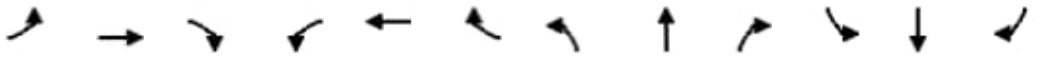
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1309	1060		
Future Volume (vph)	1309	1060		
Lane Group Flow (vph)	1309	1060		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.54	0.36		
Control Delay (s/veh)	23.5	6.0		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	23.5	6.0		
Queue Length 50th (m)	95.9	56.4		
Queue Length 95th (m)	112.1	68.7		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2924		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.54	0.36		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1309	0	0	1060	0	0	0	0	0	0	0
Future Volume (vph)	0	1309	0	0	1060	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1309	0	0	1060	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1309	0	0	1060	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	19		59	59		19	26		26	26		26
Heavy Vehicles (%)	0%	4%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2793							
v/s Ratio Prot		c0.27			c0.30							
v/s Ratio Perm												
v/c Ratio		0.55			0.37							
Uniform Delay, d1		21.1			3.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.9			0.3							
Delay (s)		22.0			4.2							
Level of Service		C			A							
Approach Delay (s/veh)		22.0			4.2			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	63	315	61	52	419
Future Vol, veh/h	50	63	315	61	52	419
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	14	4	0	2	5
Mvmt Flow	50	63	315	61	52	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	662	190	0	0	378	0
Stage 1	348	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.8	7.18	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.44	-	-	2.22	-
Pot Cap-1 Maneuver	399	783	-	-	1177	-
Stage 1	692	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	782	-	-	1175	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.7	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	375	782	1175	-
HCM Lane V/C Ratio	-	-	0.133	0.081	0.044	-
HCM Control Delay (s/veh)	-	-	16.1	10	8.2	0.2
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	0.5	0.3	0.1	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Future Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Conflicting Peds, #/hr	2	0	0	0	0	2	5	0	3	3	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	33	0	0	100	0	0	0	0	0	0	0
Mvmt Flow	106	3	4	0	9	48	0	5	0	45	14	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	7	0	0	234	276	8	258	254	36
Stage 1	-	-	-	-	-	-	217	217	-	35	35	-
Stage 2	-	-	-	-	-	-	17	59	-	223	219	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1558	-	-	1627	-	-	716	635	1080	689	653	1035
Stage 1	-	-	-	-	-	-	790	727	-	982	870	-
Stage 2	-	-	-	-	-	-	1006	850	-	784	726	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1556	-	-	1627	-	-	597	591	1077	646	607	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	591	-	646	607	-
Stage 1	-	-	-	-	-	-	736	678	-	914	868	-
Stage 2	-	-	-	-	-	-	886	848	-	724	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	7	0	11.1	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	591	1556	-	-	1627	-	-	646	951
HCM Lane V/C Ratio	0.008	0.068	-	-	-	-	-	0.07	0.124
HCM Control Delay (s/veh)	11.1	7.5	0	-	0	-	-	11	9.3
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0	0.2	-	-	0	-	-	0.2	0.4

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Future Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Conflicting Peds, #/hr	3	0	3	3	0	3	5	0	2	2	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	16	0	0	0	100	0	0	0
Mvmt Flow	2	46	0	0	56	10	0	7	1	10	13	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	49	0	0	126	122	51	120	117	69
Stage 1	-	-	-	-	-	-	53	53	-	64	64	-
Stage 2	-	-	-	-	-	-	73	69	-	56	53	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	7.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	4.2	3.5	4	3.3
Pot Cap-1 Maneuver	1545	-	-	1571	-	-	852	772	797	860	777	1000
Stage 1	-	-	-	-	-	-	965	855	-	952	846	-
Stage 2	-	-	-	-	-	-	942	841	-	961	855	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1541	-	-	1567	-	-	834	768	794	849	773	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	834	768	-	849	773	-
Stage 1	-	-	-	-	-	-	962	852	-	949	844	-
Stage 2	-	-	-	-	-	-	923	839	-	949	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0	9.7	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	771	1541	-	-	1567	-	-	811
HCM Lane V/C Ratio	0.01	0.001	-	-	-	-	-	0.03
HCM Control Delay (s/veh)	9.7	7.3	0	-	0	-	-	9.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	1055	562	66	20	16
Future Vol, veh/h	11	1055	562	66	20	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	5	0	10	0
Mvmt Flow	11	1055	562	66	20	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	628	0	-	0	1145	314
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	4.1	-	-	-	7	6.9
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.2	-	-	-	3.6	3.3
Pot Cap-1 Maneuver	964	-	-	-	181	688
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	964	-	-	-	176	688
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	520	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.2	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	964	-	-	-	176	688
HCM Lane V/C Ratio	0.011	-	-	-	0.114	0.023
HCM Control Delay (s/veh)	8.8	0.1	-	-	28.1	10.4
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q (veh)	0	-	-	-	0.4	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1262	53	0	1033	219	0	0	17	0	0	33
Future Vol, veh/h	0	1262	53	0	1033	219	0	0	17	0	0	33
Conflicting Peds, #/hr	3	0	3	3	0	3	10	0	0	0	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	7	0	0	4	5	0	0	0	0	0	9
Mvmt Flow	0	1262	53	0	1033	219	0	0	17	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	661	-	-	639
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	351	0	0	402
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	350	-	-	398
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	15.8	14.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	350	-	-	-	-	398
HCM Lane V/C Ratio	0.049	-	-	-	-	0.083
HCM Control Delay (s/veh)	15.8	-	-	-	-	14.9
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q (veh)	0.2	-	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Future Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	0	0	0	0	0	1	0	0	0	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	8	8	7	8	14	1	13	0	0	1	0	0
Stage 1	7	7	-	1	1	-	-	-	-	-	-	-
Stage 2	1	1	-	7	13	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Mov Cap-2 Maneuver	1016	891	-	1016	884	-	-	-	-	-	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1016	-	1635	-	-
HCM Lane V/C Ratio	-	-	-	0.007	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	8.6	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Future Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	8	4	0	1	22	0	18	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	55	63	1	58	54	9	1	0	0	18	0	0
Stage 1	1	1	-	53	53	-	-	-	-	-	-	-
Stage 2	54	62	-	5	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	948	832	1090	944	841	1079	1635	-	-	1612	-	-
Stage 1	1027	899	-	965	855	-	-	-	-	-	-	-
Stage 2	963	847	-	1022	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	937	820	1090	927	829	1079	1635	-	-	1612	-	-
Mov Cap-2 Maneuver	937	820	-	927	829	-	-	-	-	-	-	-
Stage 1	1013	899	-	951	843	-	-	-	-	-	-	-
Stage 2	949	835	-	1014	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.8	4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	954	1612	-	-
HCM Lane V/C Ratio	0.013	-	-	0.007	0.005	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Future Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	17	3	0	0	11	40	15	0	12	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	82	89	12	91	82	48	12	0	0	55	0	0
Stage 1	12	12	-	70	70	-	-	-	-	-	-	-
Stage 2	70	77	-	21	12	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	910	805	1074	898	812	1027	1620	-	-	1563	-	-
Stage 1	1014	890	-	945	841	-	-	-	-	-	-	-
Stage 2	945	835	-	1003	890	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	905	799	1074	879	806	1027	1620	-	-	1563	-	-
Mov Cap-2 Maneuver	905	799	-	879	806	-	-	-	-	-	-	-
Stage 1	1007	890	-	938	835	-	-	-	-	-	-	-
Stage 2	938	829	-	987	890	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.1	1.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	1074	879	1563	-	-
HCM Lane V/C Ratio	0.007	-	-	0.016	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.4	9.1	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Future Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	3	1	0	0	8	66	3	0	32	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	117	32	118	116	68	32	0	0	69	0	0
Stage 1	32	32	-	84	84	-	-	-	-	-	-	-
Stage 2	84	85	-	34	32	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	865	777	1048	863	778	1001	1593	-	-	1545	-	-
Stage 1	990	872	-	929	829	-	-	-	-	-	-	-
Stage 2	929	828	-	987	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	862	773	1048	857	774	1001	1593	-	-	1545	-	-
Mov Cap-2 Maneuver	862	773	-	857	774	-	-	-	-	-	-	-
Stage 1	985	872	-	924	825	-	-	-	-	-	-	-
Stage 2	924	824	-	984	872	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.2	0.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	1048	857	1545	-	-
HCM Lane V/C Ratio	0.005	-	-	0.003	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	66	56	0
Future Vol, veh/h	0	2	1	66	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	14	4	0
Mvmt Flow	0	2	1	66	56	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	124	56	56	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	876	792	1099	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	875	792	1099	-	-	-
Mov Cap-2 Maneuver	875	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.6	0.1	0
HCM LOS	A		

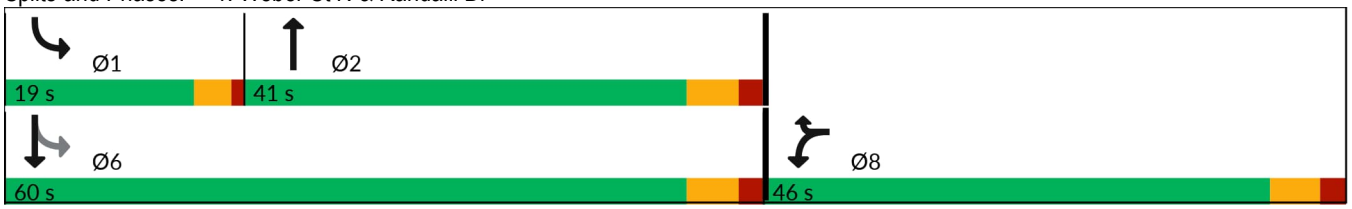
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1099	-	792	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.3	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Weekday PM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	136	451	28	472
Future Volume (vph)	295	136	451	28	472
Lane Group Flow (vph)	295	136	523	28	472
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	8.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.68	0.28	0.53	0.07	0.40
Control Delay (s/veh)	37.4	7.4	17.0	7.1	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	7.4	17.0	7.1	9.1
Queue Length 50th (m)	46.1	1.7	45.3	1.5	33.8
Queue Length 95th (m)	72.5	14.8	115.8	5.6	68.0
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	831	814	982	481	1179
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.17	0.53	0.06	0.40

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 86.1
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randalll Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	295	136	451	72	28	472
Future Volume (vph)	295	136	451	72	28	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	8.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1700	1536	1757		1351	1807
Flt Permitted	0.95	1.00	1.00		0.36	1.00
Satd. Flow (perm)	1700	1536	1757		513	1807
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	295	136	451	72	28	472
RTOR Reduction (vph)	0	93	4	0	0	0
Lane Group Flow (vph)	295	43	519	0	28	472
Confl. Peds. (#/hr)				5	5	
Heavy Vehicles (%)	5%	4%	4%	8%	32%	4%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	19.9	19.9	50.0		56.6	56.6
Effective Green, g (s)	21.9	21.9	48.0		56.6	58.6
Actuated g/C Ratio	0.25	0.25	0.54		0.64	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	420	380	952		352	1196
v/s Ratio Prot	c0.17	0.03	c0.30		0.00	c0.26
v/s Ratio Perm					0.05	
v/c Ratio	0.70	0.11	0.54		0.07	0.39
Uniform Delay, d1	30.3	25.7	13.1		6.8	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	0.1	2.2		0.0	0.9
Delay (s)	35.5	25.9	15.4		6.9	7.8
Level of Service	D	C	B		A	A
Approach Delay (s/veh)	32.5		15.4			7.7
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

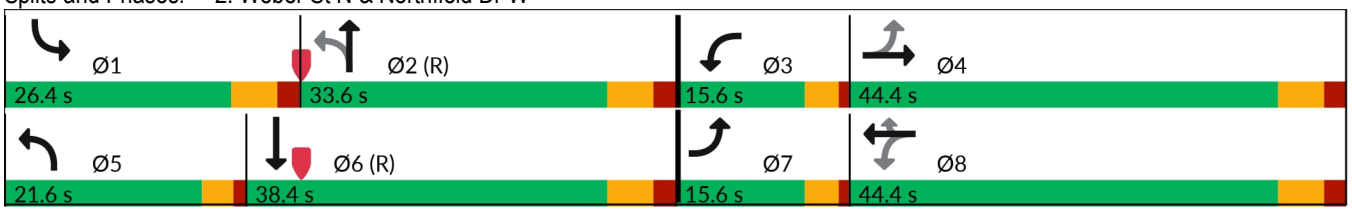
c Critical Lane Group

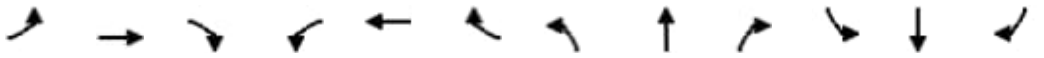
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	112	604	133	1044	154	64	264	258	304
Future Volume (vph)	112	604	133	1044	154	64	264	258	304
Lane Group Flow (vph)	112	673	133	1044	154	64	336	258	457
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.0	44.4	9.0	44.4	44.4	9.0	33.6	13.0	33.6
Total Split (s)	15.6	44.4	15.6	44.4	44.4	21.6	33.6	26.4	38.4
Total Split (%)	13.0%	37.0%	13.0%	37.0%	37.0%	18.0%	28.0%	22.0%	32.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	8.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
v/c Ratio	0.51	0.61	0.45	0.89	0.31	0.15	0.41	0.43	0.48
Control Delay (s/veh)	28.8	35.7	24.1	48.8	12.4	19.2	36.5	45.9	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.8	35.7	24.1	48.8	12.4	19.2	36.5	45.9	31.4
Queue Length 50th (m)	15.5	72.0	18.7	128.6	7.9	8.6	33.8	29.4	41.3
Queue Length 95th (m)	29.6	92.7	31.7	#167.6	25.2	17.0	48.4	42.9	58.0
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	218	1090	290	1168	491	406	811	589	942
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.62	0.46	0.89	0.31	0.16	0.41	0.44	0.49

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Weber St N & Northfield Dr W





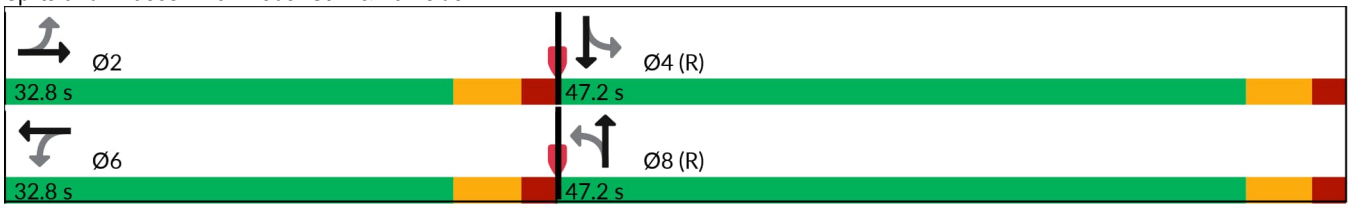
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	604	69	133	1044	154	64	264	72	258	304	153
Future Volume (vph)	112	604	69	133	1044	154	64	264	72	258	304	153
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	8.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1635	3216		1615	3472	1368	1606	3208		3156	3104	
Flt Permitted	0.10	1.00		0.23	1.00	1.00	0.41	1.00		0.95	1.00	
Satd. Flow (perm)	179	3216		401	3472	1368	694	3208		3156	3104	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	604	69	133	1044	154	64	264	72	258	304	153
RTOR Reduction (vph)	0	7	0	0	0	77	0	20	0	0	52	0
Lane Group Flow (vph)	112	666	0	133	1044	77	64	316	0	258	405	0
Confl. Peds. (#/hr)	16		18	18		16	26		13	13		26
Heavy Vehicles (%)	2%	2%	0%	2%	2%	3%	2%	0%	0%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	50.0	38.4		50.0	38.4	38.4	45.2	27.6		20.4	32.4	
Effective Green, g (s)	50.0	40.4		50.0	40.4	36.4	45.2	29.6		22.4	34.4	
Actuated g/C Ratio	0.42	0.34		0.42	0.34	0.30	0.38	0.25		0.19	0.29	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	215	1082		284	1168	414	395	791		589	889	
v/s Ratio Prot	c0.05	0.21		0.05	c0.30		0.02	0.10		c0.08	c0.13	
v/s Ratio Perm	0.17			0.15		0.06	0.04					
v/c Ratio	0.52	0.61		0.46	0.89	0.18	0.16	0.39		0.43	0.45	
Uniform Delay, d1	26.4	33.2		23.4	37.7	30.8	24.3	37.7		43.2	35.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.7	2.6		5.4	10.6	0.9	0.8	1.5		2.3	1.6	
Delay (s)	35.2	35.9		28.9	48.3	31.8	25.2	39.2		45.5	36.7	
Level of Service	D	D		C	D	C	C	D		D	D	
Approach Delay (s/veh)		35.8			44.5			37.0			39.9	
Approach LOS		D			D			D			D	

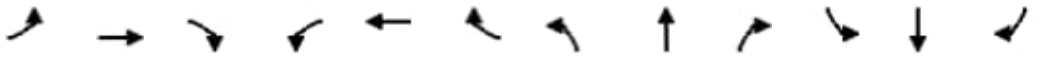
Intersection Summary			
HCM 2000 Control Delay (s/veh)	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	64	215	110	261	67	311	35	396
Future Volume (vph)	64	215	110	261	67	311	35	396
Lane Group Flow (vph)	64	264	110	286	0	499	0	506
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (%)	41.0%	41.0%	41.0%	41.0%	59.0%	59.0%	59.0%	59.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0		-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.21	0.46	0.37	0.49		0.37		0.34
Control Delay (s/veh)	20.2	21.6	23.7	22.9		9.6		10.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay (s/veh)	20.2	21.6	23.7	22.9		9.6		10.3
Queue Length 50th (m)	7.0	29.8	12.8	34.0		18.1		20.4
Queue Length 95th (m)	16.5	51.5	27.2	57.3		28.5		30.4
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0					
Base Capacity (vph)	295	568	292	581		1341		1479
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.22	0.46	0.38	0.49		0.37		0.34

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2.4 (3%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Future Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.98	1.00			0.99			0.99	
Frt	1.00	0.97		1.00	0.98			0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1662	1552		1552	1602			2898			3008	
Flt Permitted	0.46	1.00		0.49	1.00			0.82			0.89	
Satd. Flow (perm)	821	1552		812	1602			2412			2708	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	215	49	110	261	25	67	311	121	35	396	75
RTOR Reduction (vph)	0	10	0	0	4	0	0	38	0	0	17	0
Lane Group Flow (vph)	64	254	0	110	282	0	0	461	0	0	489	0
Confl. Peds. (#/hr)	6		20	20		6	9		3	3		9
Heavy Vehicles (%)	0%	2%	0%	5%	0%	4%	0%	1%	4%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.8	26.8		26.8	26.8			41.2			41.2	
Effective Green, g (s)	28.8	28.8		28.8	28.8			43.2			43.2	
Actuated g/C Ratio	0.36	0.36		0.36	0.36			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	295	558		292	576			1302			1462	
v/s Ratio Prot		0.16			c0.18							
v/s Ratio Perm	0.08			0.14				c0.19			0.18	
v/c Ratio	0.21	0.45		0.37	0.48			0.35			0.33	
Uniform Delay, d1	17.7	19.5		18.9	19.8			10.4			10.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.6	2.6		3.6	2.9			0.7			0.6	
Delay (s)	19.4	22.2		22.6	22.8			11.2			10.9	
Level of Service	B	C		C	C			B			B	
Approach Delay (s/veh)		21.7			22.7			11.2			10.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.7%	ICU Level of Service	H
Analysis Period (min)	15		

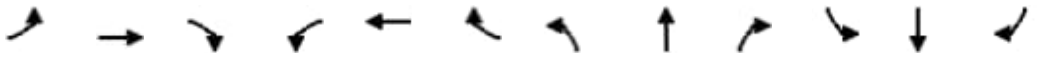
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	903	288	1324	32	15	396	88	28
Future Volume (vph)	903	288	1324	32	15	396	88	28
Lane Group Flow (vph)	933	288	1410	0	47	396	88	31
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	4	3	8		2			6
Permitted Phases		8		2		2	6	
Detector Phase	4	3	8	2	2	2	6	6
Switch Phase								
Minimum Initial (s)	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	46.0	34.0	80.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	39.7%	29.3%	69.0%	31.0%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead						
Lead-Lag Optimize?								
Recall Mode	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.71	0.73	0.70		0.12	0.55	0.22	0.06
Control Delay (s/veh)	30.5	27.5	15.6		29.0	6.5	30.3	26.0
Queue Delay	0.0	0.0	0.1		0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.5	27.5	15.8		29.0	6.5	30.3	26.0
Queue Length 50th (m)	84.8	30.9	97.7		7.1	0.0	13.7	4.1
Queue Length 95th (m)	126.3	60.2	121.3		18.2	25.4	30.2	12.6
Internal Link Dist (m)	123.1		82.8		475.0			54.4
Turn Bay Length (m)		25.0					30.0	
Base Capacity (vph)	1298	560	2399		383	708	389	473
Starvation Cap Reductn	0	0	251		0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0
Reduced v/c Ratio	0.72	0.51	0.66		0.12	0.56	0.23	0.07

Intersection Summary
Cycle Length: 116
Actuated Cycle Length: 103.8
Natural Cycle: 90
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	903	30	288	1324	86	32	15	396	88	28	3
Future Volume (vph)	0	903	30	288	1324	86	32	15	396	88	28	3
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes		1.00		0.99	1.00			0.99	1.00	0.98	1.00	
Frt		0.99		1.00	0.99			1.00	0.85	1.00	0.98	
Flt Protected		1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)		3194		1650	3262			1424	1410	1648	1525	
Flt Permitted		1.00		0.14	1.00			0.84	1.00	0.72	1.00	
Satd. Flow (perm)		3194		253	3262			1239	1410	1260	1525	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	903	30	288	1324	86	32	15	396	88	28	3
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	273	0	2	0
Lane Group Flow (vph)	0	931	0	288	1405	0	0	47	123	88	29	0
Confl. Peds. (#/hr)	9		25	25		9	2		11	11		2
Heavy Vehicles (%)	0%	3%	0%	1%	1%	3%	3%	27%	1%	1%	7%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		40.1		61.6	61.6			30.1	30.1	30.1	30.1	
Effective Green, g (s)		42.1		61.6	63.6			32.1	32.1	32.1	32.1	
Actuated g/C Ratio		0.41		0.59	0.61			0.31	0.31	0.31	0.31	
Clearance Time (s)		6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1296		386	2000			383	436	390	472	
v/s Ratio Prot		0.29		0.13	c0.43						0.02	
v/s Ratio Perm				c0.32				0.04	c0.09	0.07		
v/c Ratio		0.71		0.74	0.70			0.12	0.28	0.22	0.06	
Uniform Delay, d1		25.8		18.4	13.6			25.6	27.0	26.5	25.1	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.9		7.6	1.1			0.6	1.6	1.3	0.2	
Delay (s)		27.7		26.1	14.7			26.3	28.6	27.9	25.4	
Level of Service		C		C	B			C	C	C	C	
Approach Delay (s/veh)		27.7			16.6			28.4			27.2	
Approach LOS		C			B			C			C	

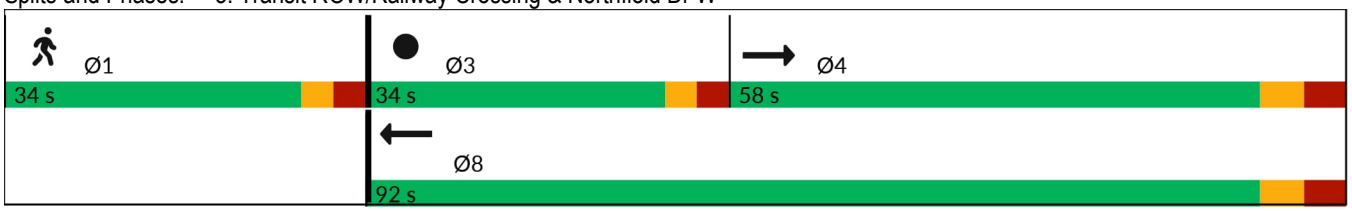
Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	103.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		

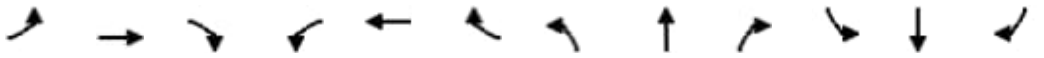
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1387	1698		
Future Volume (vph)	1387	1698		
Lane Group Flow (vph)	1387	1698		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.56	0.58		
Control Delay (s/veh)	23.8	8.5		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	23.8	8.5		
Queue Length 50th (m)	103.1	121.2		
Queue Length 95th (m)	120.0	144.5		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2460	2924		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.56	0.58		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1387	0	0	1698	0	0	0	0	0	0	0
Future Volume (vph)	0	1387	0	0	1698	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		5002			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		5002			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1387	0	0	1698	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1387	0	0	1698	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	9		79	79		9	32		32	32		32
Heavy Vehicles (%)	0%	2%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2405			2793							
v/s Ratio Prot		0.28			c0.48							
v/s Ratio Perm												
v/c Ratio		0.57			0.60							
Uniform Delay, d1		21.4			5.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.0			0.9							
Delay (s)		22.4			6.1							
Level of Service		C			A							
Approach Delay (s/veh)		22.4			6.1			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	107	416	114	93	674
Future Vol, veh/h	43	107	416	114	93	674
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	6	2	0	0	1
Mvmt Flow	43	107	416	114	93	674

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	999	268	0	0	533	0
Stage 1	476	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Critical Hdwy	6.8	7.02	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.36	-	-	2.2	-
Pot Cap-1 Maneuver	244	718	-	-	1045	-
Stage 1	597	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	716	-	-	1043	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.4	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	716	1043	-
HCM Lane V/C Ratio	-	-	0.206	0.149	0.089	-
HCM Control Delay (s/veh)	-	-	26.6	10.9	8.8	0.5
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q (veh)	-	-	0.8	0.5	0.3	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Future Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Conflicting Peds, #/hr	14	0	0	0	0	14	15	0	1	1	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	15	0	0	0	0	0	0	0
Mvmt Flow	97	81	29	0	41	43	14	6	0	20	9	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	98	0	0	110	0	0	330	388	97	371	381	71
Stage 1	-	-	-	-	-	-	290	290	-	77	77	-
Stage 2	-	-	-	-	-	-	40	98	-	294	304	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1508	-	-	1493	-	-	616	550	965	577	555	983
Stage 1	-	-	-	-	-	-	722	676	-	929	835	-
Stage 2	-	-	-	-	-	-	976	818	-	719	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1492	-	-	1493	-	-	513	507	964	535	511	961
Mov Cap-2 Maneuver	-	-	-	-	-	-	513	507	-	535	511	-
Stage 1	-	-	-	-	-	-	672	629	-	856	826	-
Stage 2	-	-	-	-	-	-	860	809	-	662	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	3.6	0	12.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	511	1492	-	-	1493	-	-	535	893
HCM Lane V/C Ratio	0.039	0.065	-	-	-	-	-	0.037	0.116
HCM Control Delay (s/veh)	12.3	7.6	0	-	0	-	-	12	9.6
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0.1	0.2	-	-	0	-	-	0.1	0.4

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Future Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Conflicting Peds, #/hr	0	0	2	4	0	0	0	0	5	5	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	9	0	0	0	1	0	0	0
Mvmt Flow	3	98	0	0	67	34	1	0	73	21	7	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	102	0	0	204	209	107	230	192	84
Stage 1	-	-	-	-	-	-	108	108	-	84	84	-
Stage 2	-	-	-	-	-	-	96	101	-	146	108	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.21	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.309	3.5	4	3.3
Pot Cap-1 Maneuver	1504	-	-	1503	-	-	758	692	950	729	707	981
Stage 1	-	-	-	-	-	-	902	810	-	929	829	-
Stage 2	-	-	-	-	-	-	916	815	-	861	810	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1504	-	-	1498	-	-	737	689	943	669	703	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	689	-	669	703	-
Stage 1	-	-	-	-	-	-	897	806	-	927	829	-
Stage 2	-	-	-	-	-	-	893	815	-	790	806	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0	9.2	10
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	939	1504	-	-	1498	-	-	763
HCM Lane V/C Ratio	0.079	0.002	-	-	-	-	-	0.058
HCM Control Delay (s/veh)	9.2	7.4	0	-	0	-	-	10
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q (veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	907	1297	62	26	34
Future Vol, veh/h	27	907	1297	62	26	34
Conflicting Peds, #/hr	13	0	0	13	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	1	0	8	0
Mvmt Flow	27	907	1297	62	26	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1372	0	-	0	1852	693
Stage 1	-	-	-	-	1341	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	4.1	-	-	-	6.96	6.9
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	2.2	-	-	-	3.58	3.3
Pot Cap-1 Maneuver	507	-	-	-	61	390
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	550	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	502	-	-	-	53	386
Mov Cap-2 Maneuver	-	-	-	-	53	-
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	545	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.9	0	63.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	502	-	-	-	53	386
HCM Lane V/C Ratio	0.054	-	-	-	0.491	0.088
HCM Control Delay (s/veh)	12.6	0.6	-	-	126	15.2
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q (veh)	0.2	-	-	-	1.9	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1381	11	0	1656	124	0	0	43	0	0	45
Future Vol, veh/h	0	1381	11	0	1656	124	0	0	43	0	0	45
Conflicting Peds, #/hr	4	0	2	2	0	4	36	0	0	0	0	36
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	2	3	0	0	2	0	0	4
Mvmt Flow	0	1381	11	0	1656	124	0	0	43	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	698	-	-	930
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.34
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	328	0	0	265
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	327	-	-	257
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	17.7	22
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	327	-	-	-	-	257
HCM Lane V/C Ratio	0.131	-	-	-	-	0.175
HCM Control Delay (s/veh)	17.7	-	-	-	-	22
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.4	-	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Future Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	1	0	73	0	0	0	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	78	77	4	77	80	73	7	0	0	73	0	0
Stage 1	4	4	-	73	73	-	-	-	-	-	-	-
Stage 2	74	73	-	4	7	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	916	817	1085	917	814	995	1627	-	-	1540	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	940	838	-	1024	894	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	817	1085	917	814	995	1627	-	-	1540	-	-
Mov Cap-2 Maneuver	915	817	-	917	814	-	-	-	-	-	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	939	838	-	1024	894	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1627	-	-	-	995	1540	-	-
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	8.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Future Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	50	0	0	5	0	12	30	11	5	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	81	77	1	75	75	14	1	0	0	16	0	0
Stage 1	1	1	-	74	74	-	-	-	-	-	-	-
Stage 2	80	76	-	1	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	912	817	1090	920	819	1072	1635	-	-	1615	-	-
Stage 1	1027	899	-	940	837	-	-	-	-	-	-	-
Stage 2	934	836	-	1027	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	888	801	1090	907	803	1072	1635	-	-	1615	-	-
Mov Cap-2 Maneuver	888	801	-	907	803	-	-	-	-	-	-	-
Stage 1	1007	899	-	922	821	-	-	-	-	-	-	-
Stage 2	906	820	-	1027	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.3	8.6	4.7	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	888	1018	1615	-	-
HCM Lane V/C Ratio	0.018	-	-	0.056	0.017	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	9.3	8.6	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Future Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	37	4	0	11	37	35	5	0	5	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	122	119	5	136	117	38	5	0	0	40	0	0
Stage 1	5	5	-	112	112	-	-	-	-	-	-	-
Stage 2	117	114	-	24	5	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	858	775	1084	840	777	1040	1630	-	-	1583	-	-
Stage 1	1022	896	-	898	807	-	-	-	-	-	-	-
Stage 2	892	805	-	999	896	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	834	757	1084	797	759	1040	1630	-	-	1583	-	-
Mov Cap-2 Maneuver	834	757	-	797	759	-	-	-	-	-	-	-
Stage 1	998	896	-	877	788	-	-	-	-	-	-	-
Stage 2	862	786	-	965	896	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	8.8	3.5	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1630	-	-	1084	962	1583	-	-
HCM Lane V/C Ratio	0.023	-	-	0.034	0.016	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Future Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	11	1	0	0	11	77	1	0	46	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	146	146	46	152	146	78	46	0	0	78	0	0
Stage 1	46	46	-	100	100	-	-	-	-	-	-	-
Stage 2	100	100	-	52	46	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	827	749	1029	820	749	988	1575	-	-	1533	-	-
Stage 1	973	861	-	911	816	-	-	-	-	-	-	-
Stage 2	911	816	-	966	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	823	744	1029	807	744	988	1575	-	-	1533	-	-
Mov Cap-2 Maneuver	823	744	-	807	744	-	-	-	-	-	-	-
Stage 1	966	861	-	905	810	-	-	-	-	-	-	-
Stage 2	905	810	-	956	861	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.5	9.5	0.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1029	807	1533	-	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.5	9.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	101	119	0
Future Vol, veh/h	0	2	1	101	119	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	6	1	0
Mvmt Flow	0	2	1	101	119	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	222	119	119	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	771	724	1032	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	724	1032	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1032	-	724	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

APPENDIX F

2031 & 2041 Future Background Intersection Capacity Analysis

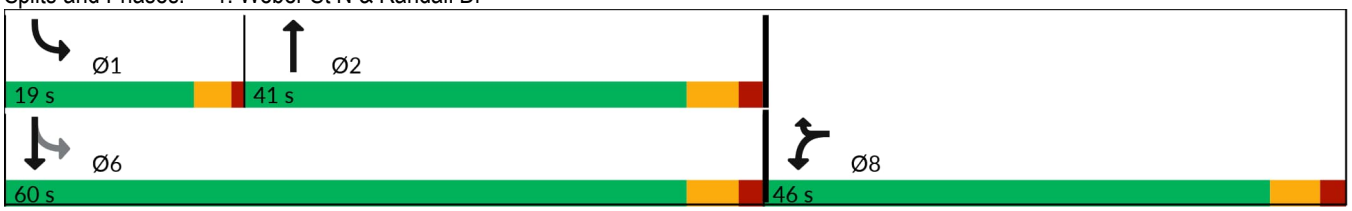
2031 Future Background Intersection Capacity Analysis

Weekday AM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	72	24	270	45	399
Future Volume (vph)	72	24	270	45	399
Lane Group Flow (vph)	72	24	378	45	399
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.33	0.10	0.31	0.06	0.28
Control Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Length 50th (m)	9.8	0.0	23.4	1.4	15.1
Queue Length 95th (m)	21.5	6.1	45.9	4.3	30.4
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	767	788	1207	777	1413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.31	0.06	0.28

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randall Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	24	270	108	45	399
Future Volume (vph)	72	24	270	108	45	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1696		1605	1789
Flt Permitted	0.95	1.00	1.00		0.47	1.00
Satd. Flow (perm)	1394	1413	1696		795	1789
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	24	270	108	45	399
RTOR Reduction (vph)	0	21	7	0	0	0
Lane Group Flow (vph)	72	3	371	0	45	399
Confl. Peds. (#/hr)				6	6	
Heavy Vehicles (%)	28%	13%	6%	5%	11%	5%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	8.1	8.1	51.3		59.1	59.1
Effective Green, g (s)	10.1	10.1	53.3		59.1	61.1
Actuated g/C Ratio	0.13	0.13	0.67		0.75	0.77
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	180	1141		632	1380
v/s Ratio Prot	c0.05	0.00	c0.22		0.00	c0.22
v/s Ratio Perm					0.05	
v/c Ratio	0.40	0.01	0.32		0.07	0.28
Uniform Delay, d1	31.7	30.2	5.4		2.9	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.0	0.7		0.0	0.5
Delay (s)	33.3	30.2	6.1		2.9	3.1
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	32.5		6.1			3.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

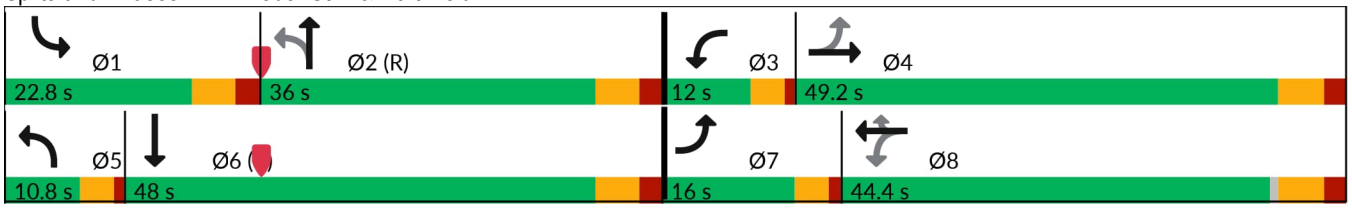
c Critical Lane Group

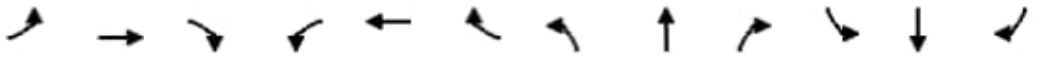
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	144	891	68	509	122	31	110	161	254
Future Volume (vph)	144	891	68	509	122	31	110	161	254
Lane Group Flow (vph)	144	975	68	509	122	31	209	161	308
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.5	44.4	9.0	44.4	44.4	9.5	36.0	13.0	36.0
Total Split (s)	16.0	49.2	12.0	44.4	44.4	10.8	36.0	22.8	48.0
Total Split (%)	13.3%	41.0%	10.0%	37.0%	37.0%	9.0%	30.0%	19.0%	40.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
v/c Ratio	0.38	0.79	0.38	0.44	0.21	0.09	0.24	0.34	0.26
Control Delay (s/veh)	21.2	38.6	24.2	32.0	2.8	19.9	18.6	47.4	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.2	38.6	24.2	32.0	2.8	19.9	18.6	47.4	25.1
Queue Length 50th (m)	19.9	111.0	9.0	51.1	0.0	4.2	10.9	18.5	25.6
Queue Length 95th (m)	33.2	138.2	17.6	67.5	7.5	10.1	21.3	29.4	37.1
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	375	1230	176	1147	572	340	848	471	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.79	0.39	0.44	0.21	0.09	0.25	0.34	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15.6 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Pretimed

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	891	84	68	509	122	31	110	99	161	254	54
Future Volume (vph)	144	891	84	68	509	122	31	110	99	161	254	54
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3252		1555	3341	1371	1590	2908		3010	3135	
Flt Permitted	0.31	1.00		0.13	1.00	1.00	0.56	1.00		0.95	1.00	
Satd. Flow (perm)	555	3252		213	3341	1371	945	2908		3010	3135	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	891	84	68	509	122	31	110	99	161	254	54
RTOR Reduction (vph)	0	6	0	0	0	80	0	73	0	0	15	0
Lane Group Flow (vph)	144	969	0	68	509	42	31	136	0	161	293	0
Confl. Peds. (#/hr)	3		16	16		3	16		14	14		16
Heavy Vehicles (%)	0%	1%	1%	6%	6%	4%	3%	7%	3%	8%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	55.2	43.2		47.2	39.2	39.2	36.8	30.0		16.8	42.0	
Effective Green, g (s)	55.2	45.2		47.2	41.2	41.2	36.8	32.0		18.8	44.0	
Actuated g/C Ratio	0.46	0.38		0.39	0.34	0.34	0.31	0.27		0.16	0.37	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	366	1224		173	1147	470	326	775		471	1149	
v/s Ratio Prot	c0.04	c0.30		0.03	0.15		0.01	0.05		c0.05	c0.09	
v/s Ratio Perm	0.14			0.13		0.03	0.02					
v/c Ratio	0.39	0.79		0.39	0.44	0.08	0.09	0.17		0.34	0.25	
Uniform Delay, d1	20.1	33.2		25.4	30.5	26.6	29.4	33.8		45.0	26.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	5.2		6.5	1.2	0.3	0.5	0.4		1.9	0.5	
Delay (s)	23.2	38.5		31.9	31.7	27.0	29.9	34.3		47.0	27.0	
Level of Service	C	D		C	C	C	C	C		D	C	
Approach Delay (s/veh)		36.5			30.9			33.7			33.9	
Approach LOS		D			C			C			C	

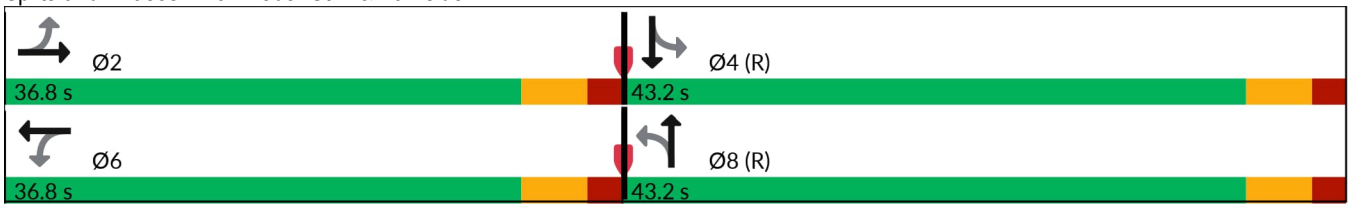
Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

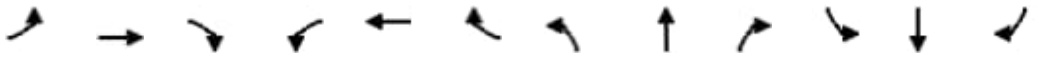
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	62	166	76	191	16	165	30	290
Future Volume (vph)	62	166	76	191	16	165	30	290
Lane Group Flow (vph)	62	215	76	204	16	237	30	376
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (%)	46.0%	46.0%	46.0%	46.0%	54.0%	54.0%	54.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.15	0.33	0.20	0.30	0.04	0.17	0.06	0.25
Control Delay (s/veh)	16.2	16.0	17.0	17.1	12.1	8.1	12.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.2	16.0	17.0	17.1	12.1	8.1	12.4	10.1
Queue Length 50th (m)	6.1	20.1	7.6	20.8	1.3	7.1	2.5	14.0
Queue Length 95th (m)	14.2	36.7	17.1	36.8	4.7	13.4	7.2	22.5
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	404	648	378	664	385	1374	458	1465
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.33	0.20	0.31	0.04	0.17	0.07	0.26

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42.7 (53%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Future Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1587	1549		1516	1615		1535	2731		1550	2920	
Flt Permitted	0.59	1.00		0.57	1.00		0.51	1.00		0.60	1.00	
Satd. Flow (perm)	987	1549		922	1615		830	2731		986	2920	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	166	49	76	191	13	16	165	72	30	290	86
RTOR Reduction (vph)	0	14	0	0	3	0	0	37	0	0	35	0
Lane Group Flow (vph)	62	201	0	76	201	0	16	200	0	30	341	0
Confl. Peds. (#/hr)	1		13	13		1	3					3
Heavy Vehicles (%)	5%	1%	2%	8%	0%	0%	0%	7%	10%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		37.2	37.2		37.2	37.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8		37.2	39.2		37.2	39.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.49		0.47	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	404	635		378	662		385	1338		458	1430	
v/s Ratio Prot		c0.13			0.12			0.07			c0.12	
v/s Ratio Perm	0.06			0.08			0.02			0.03		
v/c Ratio	0.15	0.31		0.20	0.30		0.04	0.14		0.06	0.23	
Uniform Delay, d1	14.8	16.0		15.1	15.9		11.6	11.2		11.8	11.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.3		1.1	1.1		0.2	0.2		0.2	0.3	
Delay (s)	15.6	17.3		16.3	17.0		11.8	11.4		12.0	12.1	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s/veh)		16.9			16.8			11.4			12.1	
Approach LOS		B			B			B			B	

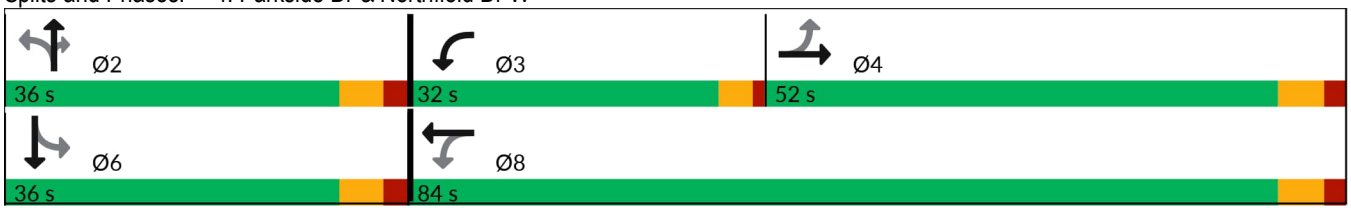
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

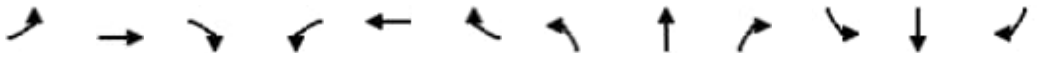
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1134	393	732	16	8	215	45	10
Future Volume (vph)	2	1134	393	732	16	8	215	45	10
Lane Group Flow (vph)	2	1158	393	788	0	24	215	45	11
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	40.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	52.0	52.0	32.0	84.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	43.3%	43.3%	26.7%	70.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.91	0.92	0.38		0.06	0.39	0.13	0.02
Control Delay (s/veh)	22.0	45.5	60.9	9.4		33.7	6.8	34.8	31.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.0	45.5	60.9	9.4		33.7	6.8	34.8	31.0
Queue Length 50th (m)	0.3	140.7	77.5	40.9		4.5	0.0	8.5	1.9
Queue Length 95th (m)	2.1	#186.0	#135.8	52.2		11.7	19.0	18.7	6.7
Internal Link Dist (m)		123.1		82.8		475.0			54.4
Turn Bay Length (m)	35.0		25.0					30.0	
Base Capacity (vph)	254	1302	450	2160		344	542	345	376
Starvation Cap Reductn	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.01	0.89	0.87	0.36		0.07	0.40	0.13	0.03

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 117
Natural Cycle: 100
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1134	24	393	732	56	16	8	215	45	10	1
Future Volume (vph)	2	1134	24	393	732	56	16	8	215	45	10	1
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.98	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1663	3166		1635	3147			1390	1408	1614	1372	
Flt Permitted	0.35	1.00		0.08	1.00			0.87	1.00	0.74	1.00	
Satd. Flow (perm)	619	3166		141	3147			1260	1408	1260	1372	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	1134	24	393	732	56	16	8	215	45	10	1
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	156	0	1	0
Lane Group Flow (vph)	2	1157	0	393	783	0	0	24	59	45	10	0
Confl. Peds. (#/hr)	6		18	18		6	10		3	3		10
Heavy Vehicles (%)	0%	4%	8%	2%	4%	13%	0%	38%	2%	4%	20%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	44.8	44.8		74.9	74.9			30.1	30.1	30.1	30.1	
Effective Green, g (s)	46.8	46.8		74.9	76.9			32.1	32.1	32.1	32.1	
Actuated g/C Ratio	0.40	0.40		0.64	0.66			0.27	0.27	0.27	0.27	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	247	1266		423	2068			345	386	345	376	
v/s Ratio Prot		0.37		c0.21	0.25						0.01	
v/s Ratio Perm	0.00			c0.39				0.02	c0.04	0.04		
v/c Ratio	0.00	0.91		0.92	0.37			0.06	0.15	0.13	0.02	
Uniform Delay, d1	21.1	33.1		35.3	9.1			31.4	32.1	31.9	31.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	10.2		26.5	0.1			0.3	0.8	0.7	0.1	
Delay (s)	21.1	43.3		61.8	9.2			31.7	32.9	32.7	31.1	
Level of Service	C	D		E	A			C	C	C	C	
Approach Delay (s/veh)		43.3			26.7			32.8			32.4	
Approach LOS		D			C			C			C	

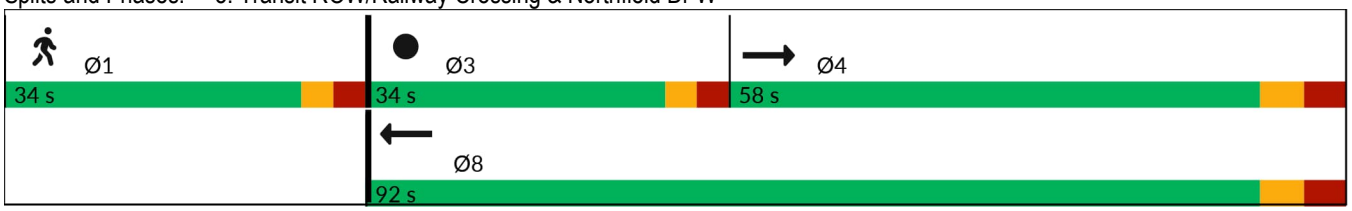
Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

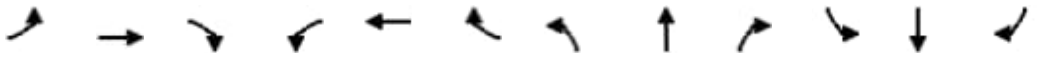
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1394	1181		
Future Volume (vph)	1394	1181		
Lane Group Flow (vph)	1394	1181		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.57	0.42		
Control Delay (s/veh)	24.1	6.5		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	24.1	6.5		
Queue Length 50th (m)	104.5	67.4		
Queue Length 95th (m)	121.8	81.7		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2811		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.58	0.42		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1394	0	0	1181	0	0	0	0	0	0	0
Future Volume (vph)	0	1394	0	0	1181	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3433							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3433							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1394	0	0	1181	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1394	0	0	1181	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	19		59	59		19	26		26	26		26
Heavy Vehicles (%)	0%	4%	0%	100%	4%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2686							
v/s Ratio Prot		c0.28			c0.34							
v/s Ratio Perm												
v/c Ratio		0.59			0.43							
Uniform Delay, d1		21.6			4.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.0			0.5							
Delay (s)		22.7			4.6							
Level of Service		C			A							
Approach Delay (s/veh)		22.7			4.6			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	63	315	61	52	419
Future Vol, veh/h	50	63	315	61	52	419
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	14	4	0	2	5
Mvmt Flow	50	63	315	61	52	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	662	190	0	0	378	0
Stage 1	348	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.8	7.18	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.44	-	-	2.22	-
Pot Cap-1 Maneuver	399	783	-	-	1177	-
Stage 1	692	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	782	-	-	1175	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.7	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	375	782	1175	-
HCM Lane V/C Ratio	-	-	0.133	0.081	0.044	-
HCM Control Delay (s/veh)	-	-	16.1	10	8.2	0.2
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	0.5	0.3	0.1	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Future Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Conflicting Peds, #/hr	2	0	0	0	0	2	5	0	3	3	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	33	0	0	100	0	0	0	0	0	0	0
Mvmt Flow	106	3	4	0	9	48	0	5	0	45	14	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	7	0	0	234	276	8	258	254	36
Stage 1	-	-	-	-	-	-	217	217	-	35	35	-
Stage 2	-	-	-	-	-	-	17	59	-	223	219	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1558	-	-	1627	-	-	716	635	1080	689	653	1035
Stage 1	-	-	-	-	-	-	790	727	-	982	870	-
Stage 2	-	-	-	-	-	-	1006	850	-	784	726	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1556	-	-	1627	-	-	597	591	1077	646	607	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	591	-	646	607	-
Stage 1	-	-	-	-	-	-	736	678	-	914	868	-
Stage 2	-	-	-	-	-	-	886	848	-	724	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	7	0	11.1	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	591	1556	-	-	1627	-	-	646	951
HCM Lane V/C Ratio	0.008	0.068	-	-	-	-	-	0.07	0.124
HCM Control Delay (s/veh)	11.1	7.5	0	-	0	-	-	11	9.3
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0	0.2	-	-	0	-	-	0.2	0.4

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Future Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Conflicting Peds, #/hr	3	0	3	3	0	3	5	0	2	2	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	16	0	0	0	100	0	0	0
Mvmt Flow	2	46	0	0	56	10	0	7	1	10	13	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	49	0	0	126	122	51	120	117	69
Stage 1	-	-	-	-	-	-	53	53	-	64	64	-
Stage 2	-	-	-	-	-	-	73	69	-	56	53	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	7.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	4.2	3.5	4	3.3
Pot Cap-1 Maneuver	1545	-	-	1571	-	-	852	772	797	860	777	1000
Stage 1	-	-	-	-	-	-	965	855	-	952	846	-
Stage 2	-	-	-	-	-	-	942	841	-	961	855	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1541	-	-	1567	-	-	834	768	794	849	773	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	834	768	-	849	773	-
Stage 1	-	-	-	-	-	-	962	852	-	949	844	-
Stage 2	-	-	-	-	-	-	923	839	-	949	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0	9.7	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	771	1541	-	-	1567	-	-	811
HCM Lane V/C Ratio	0.01	0.001	-	-	-	-	-	0.03
HCM Control Delay (s/veh)	9.7	7.3	0	-	0	-	-	9.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	1140	683	66	20	16
Future Vol, veh/h	11	1140	683	66	20	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	4	0	10	0
Mvmt Flow	11	1140	683	66	20	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	749	0	-	0	1308	375
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	4.1	-	-	-	7	6.9
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.2	-	-	-	3.6	3.3
Pot Cap-1 Maneuver	869	-	-	-	141	628
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	494	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	869	-	-	-	136	628
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.3	0	24.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	869	-	-	-	136	628
HCM Lane V/C Ratio	0.013	-	-	-	0.147	0.025
HCM Control Delay (s/veh)	9.2	0.2	-	-	36	10.9
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q (veh)	0	-	-	-	0.5	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1347	53	0	1154	219	0	0	17	0	0	33
Future Vol, veh/h	0	1347	53	0	1154	219	0	0	17	0	0	33
Conflicting Peds, #/hr	3	0	3	3	0	3	10	0	0	0	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	5	0	0	0	0	0	9
Mvmt Flow	0	1347	53	0	1154	219	0	0	17	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	703	-	-	700
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	330	0	0	366
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	329	-	-	362
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	16.5	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	329	-	-	-	-	362
HCM Lane V/C Ratio	0.052	-	-	-	-	0.091
HCM Control Delay (s/veh)	16.5	-	-	-	-	15.9
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Future Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	0	0	0	0	0	1	0	0	0	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	8	8	7	8	14	1	13	0	0	1	0	0
Stage 1	7	7	-	1	1	-	-	-	-	-	-	-
Stage 2	1	1	-	7	13	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Mov Cap-2 Maneuver	1016	891	-	1016	884	-	-	-	-	-	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1016	-	1635	-	-
HCM Lane V/C Ratio	-	-	-	0.007	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	8.6	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Future Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	8	4	0	1	22	0	18	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	55	63	1	58	54	9	1	0	0	18	0	0
Stage 1	1	1	-	53	53	-	-	-	-	-	-	-
Stage 2	54	62	-	5	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	948	832	1090	944	841	1079	1635	-	-	1612	-	-
Stage 1	1027	899	-	965	855	-	-	-	-	-	-	-
Stage 2	963	847	-	1022	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	937	820	1090	927	829	1079	1635	-	-	1612	-	-
Mov Cap-2 Maneuver	937	820	-	927	829	-	-	-	-	-	-	-
Stage 1	1013	899	-	951	843	-	-	-	-	-	-	-
Stage 2	949	835	-	1014	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.8	4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	954	1612	-	-
HCM Lane V/C Ratio	0.013	-	-	0.007	0.005	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Future Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	17	3	0	0	11	40	15	0	12	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	82	89	12	91	82	48	12	0	0	55	0	0
Stage 1	12	12	-	70	70	-	-	-	-	-	-	-
Stage 2	70	77	-	21	12	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	910	805	1074	898	812	1027	1620	-	-	1563	-	-
Stage 1	1014	890	-	945	841	-	-	-	-	-	-	-
Stage 2	945	835	-	1003	890	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	905	799	1074	879	806	1027	1620	-	-	1563	-	-
Mov Cap-2 Maneuver	905	799	-	879	806	-	-	-	-	-	-	-
Stage 1	1007	890	-	938	835	-	-	-	-	-	-	-
Stage 2	938	829	-	987	890	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.1	1.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	1074	879	1563	-	-
HCM Lane V/C Ratio	0.007	-	-	0.016	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.4	9.1	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Future Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	3	1	0	0	8	66	3	0	32	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	117	32	118	116	68	32	0	0	69	0	0
Stage 1	32	32	-	84	84	-	-	-	-	-	-	-
Stage 2	84	85	-	34	32	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	865	777	1048	863	778	1001	1593	-	-	1545	-	-
Stage 1	990	872	-	929	829	-	-	-	-	-	-	-
Stage 2	929	828	-	987	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	862	773	1048	857	774	1001	1593	-	-	1545	-	-
Mov Cap-2 Maneuver	862	773	-	857	774	-	-	-	-	-	-	-
Stage 1	985	872	-	924	825	-	-	-	-	-	-	-
Stage 2	924	824	-	984	872	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.2	0.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	1048	857	1545	-	-
HCM Lane V/C Ratio	0.005	-	-	0.003	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	66	56	0
Future Vol, veh/h	0	2	1	66	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	14	4	0
Mvmt Flow	0	2	1	66	56	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	124	56	56	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	876	792	1099	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	875	792	1099	-	-	-
Mov Cap-2 Maneuver	875	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.6	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1099	-	792	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.3	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

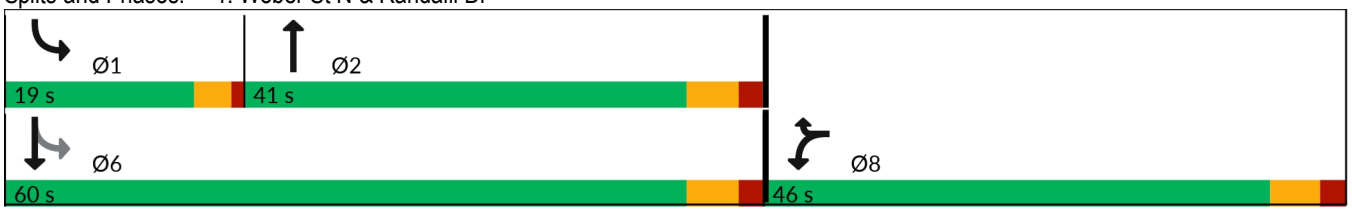
Weekday PM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	136	451	28	472
Future Volume (vph)	295	136	451	28	472
Lane Group Flow (vph)	295	136	523	28	472
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	8.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.68	0.28	0.52	0.07	0.39
Control Delay (s/veh)	37.4	7.4	16.9	7.1	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	7.4	16.9	7.1	9.0
Queue Length 50th (m)	46.1	1.7	45.0	1.5	33.6
Queue Length 95th (m)	72.5	14.8	115.3	5.6	67.5
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	831	814	991	481	1201
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.17	0.53	0.06	0.39

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 86.1
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randalll Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	295	136	451	72	28	472
Future Volume (vph)	295	136	451	72	28	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	8.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1700	1536	1772		1351	1842
Flt Permitted	0.95	1.00	1.00		0.36	1.00
Satd. Flow (perm)	1700	1536	1772		513	1842
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	295	136	451	72	28	472
RTOR Reduction (vph)	0	93	4	0	0	0
Lane Group Flow (vph)	295	43	519	0	28	472
Confl. Peds. (#/hr)				5	5	
Heavy Vehicles (%)	5%	4%	3%	8%	32%	2%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	19.9	19.9	50.0		56.6	56.6
Effective Green, g (s)	21.9	21.9	48.0		56.6	58.6
Actuated g/C Ratio	0.25	0.25	0.54		0.64	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	420	380	961		352	1219
v/s Ratio Prot	c0.17	0.03	c0.29		0.00	c0.26
v/s Ratio Perm					0.05	
v/c Ratio	0.70	0.11	0.54		0.07	0.38
Uniform Delay, d1	30.3	25.7	13.1		6.8	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	0.1	2.1		0.0	0.9
Delay (s)	35.5	25.9	15.2		6.9	7.7
Level of Service	D	C	B		A	A
Approach Delay (s/veh)	32.5		15.2			7.6
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

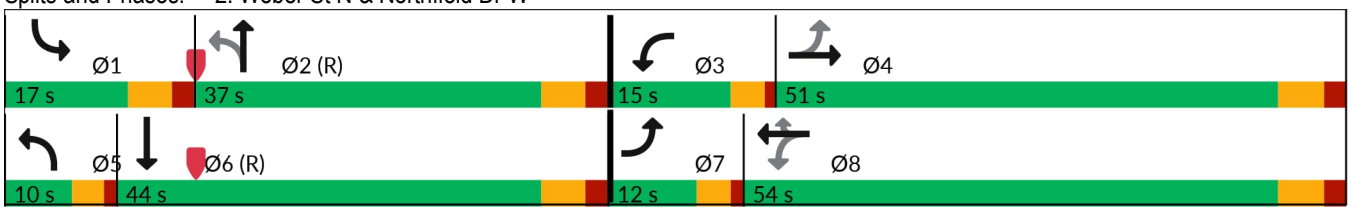
c Critical Lane Group

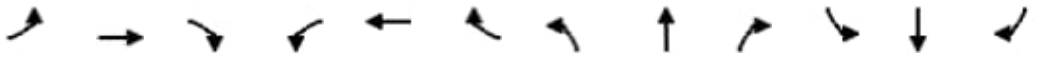
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	112	707	133	1135	154	64	264	258	304
Future Volume (vph)	112	707	133	1135	154	64	264	258	304
Lane Group Flow (vph)	112	776	133	1135	154	64	336	258	457
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.0	44.4	9.0	44.4	44.4	9.0	33.6	13.0	33.6
Total Split (s)	12.0	51.0	15.0	54.0	54.0	10.0	37.0	17.0	44.0
Total Split (%)	10.0%	42.5%	12.5%	45.0%	45.0%	8.3%	30.8%	14.2%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	8.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
v/c Ratio	0.64	0.60	0.45	0.77	0.24	0.21	0.37	0.75	0.42
Control Delay (s/veh)	36.6	31.1	20.5	34.7	4.7	23.8	33.4	66.8	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.6	31.1	20.5	34.7	4.7	23.8	33.4	66.8	26.7
Queue Length 50th (m)	13.9	78.6	16.8	125.6	0.0	9.5	32.3	32.5	37.8
Queue Length 95th (m)	#34.0	100.0	28.4	153.6	13.5	18.8	46.4	#51.0	53.3
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	173	1280	293	1460	619	295	902	341	1087
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.61	0.45	0.78	0.25	0.22	0.37	0.76	0.42

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	707	69	133	1135	154	64	264	72	258	304	153
Future Volume (vph)	112	707	69	133	1135	154	64	264	72	258	304	153
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	8.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1635	3253		1615	3506	1368	1604	3208		3156	3104	
Flt Permitted	0.09	1.00		0.20	1.00	1.00	0.46	1.00		0.95	1.00	
Satd. Flow (perm)	165	3253		349	3506	1368	789	3208		3156	3104	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	707	69	133	1135	154	64	264	72	258	304	153
RTOR Reduction (vph)	0	6	0	0	0	95	0	20	0	0	52	0
Lane Group Flow (vph)	112	770	0	133	1135	59	64	316	0	258	405	0
Confl. Peds. (#/hr)	16		18	18		16	26		13	13		26
Heavy Vehicles (%)	2%	1%	0%	2%	1%	3%	2%	0%	0%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	53.0	45.0		59.0	48.0	48.0	37.0	31.0		11.0	38.0	
Effective Green, g (s)	53.0	47.0		59.0	50.0	46.0	37.0	33.0		13.0	40.0	
Actuated g/C Ratio	0.44	0.39		0.49	0.42	0.38	0.31	0.28		0.11	0.33	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	170	1274		287	1460	524	284	882		341	1034	
v/s Ratio Prot	c0.04	0.24		c0.04	c0.32		0.01	0.10		c0.08	c0.13	
v/s Ratio Perm	0.25			0.18		0.04	0.06					
v/c Ratio	0.65	0.60		0.46	0.77	0.11	0.22	0.35		0.75	0.39	
Uniform Delay, d1	24.4	29.0		19.1	30.1	23.8	29.9	34.9		51.9	30.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.2	2.1		5.3	4.1	0.4	1.8	1.1		14.4	1.1	
Delay (s)	42.6	31.2		24.4	34.3	24.2	31.7	36.1		66.4	31.7	
Level of Service	D	C		C	C	C	C	D		E	C	
Approach Delay (s/veh)		32.6			32.3			35.4			44.2	
Approach LOS		C			C			D			D	

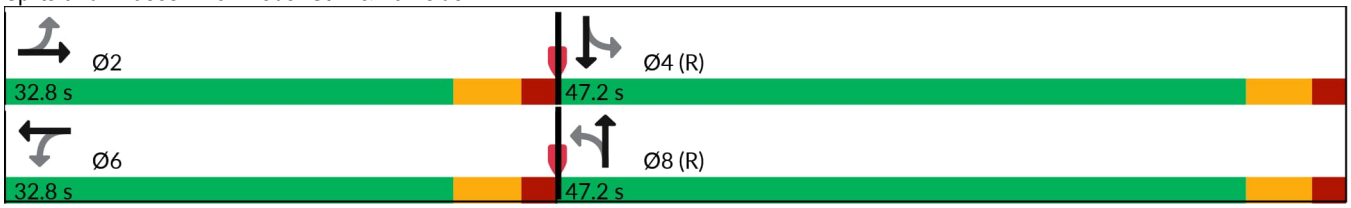
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

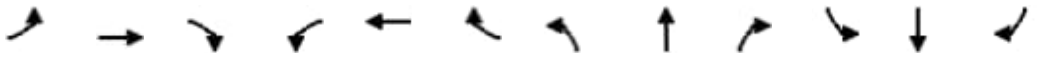
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	64	215	110	261	67	311	35	396
Future Volume (vph)	64	215	110	261	67	311	35	396
Lane Group Flow (vph)	64	264	110	286	67	432	35	471
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (%)	41.0%	41.0%	41.0%	41.0%	59.0%	59.0%	59.0%	59.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.21	0.46	0.37	0.49	0.17	0.26	0.08	0.28
Control Delay (s/veh)	20.2	21.6	23.7	22.9	11.9	7.6	10.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	21.6	23.7	22.9	11.9	7.6	10.6	9.5
Queue Length 50th (m)	7.0	29.8	12.8	34.0	5.4	13.0	2.7	18.0
Queue Length 95th (m)	16.5	51.5	27.2	57.3	12.7	20.9	7.4	26.9
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	295	568	292	581	381	1613	407	1645
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.46	0.38	0.49	0.18	0.27	0.09	0.29

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2.4 (3%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Future Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	1552		1552	1602		1531	2893		1549	3012	
Flt Permitted	0.46	1.00		0.49	1.00		0.46	1.00		0.48	1.00	
Satd. Flow (perm)	821	1552		812	1602		741	2893		790	3012	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	215	49	110	261	25	67	311	121	35	396	75
RTOR Reduction (vph)	0	10	0	0	4	0	0	52	0	0	19	0
Lane Group Flow (vph)	64	254	0	110	282	0	67	380	0	35	452	0
Confl. Peds. (#/hr)	6		20	20		6	9		3	3		9
Heavy Vehicles (%)	0%	2%	0%	5%	0%	4%	0%	1%	4%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.8	26.8		26.8	26.8		41.2	41.2		41.2	41.2	
Effective Green, g (s)	28.8	28.8		28.8	28.8		41.2	43.2		41.2	43.2	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.52	0.54		0.52	0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	295	558		292	576		381	1562		406	1626	
v/s Ratio Prot		0.16			c0.18			0.13			c0.15	
v/s Ratio Perm	0.08			0.14			0.09			0.04		
v/c Ratio	0.21	0.45		0.37	0.48		0.17	0.24		0.08	0.27	
Uniform Delay, d1	17.7	19.5		18.9	19.8		10.3	9.7		9.8	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	2.6		3.6	2.9		1.0	0.3		0.4	0.4	
Delay (s)	19.4	22.2		22.6	22.8		11.3	10.1		10.2	10.3	
Level of Service	B	C		C	C		B	B		B	B	
Approach Delay (s/veh)		21.7			22.7			10.2			10.3	
Approach LOS		C			C			B			B	

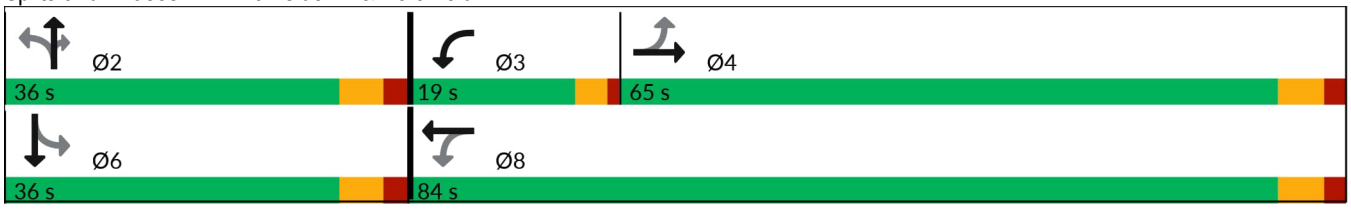
Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	118.8%	ICU Level of Service	H
Analysis Period (min)	15		

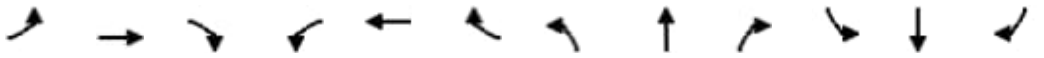
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1006	288	1415	32	15	396	88	28
Future Volume (vph)	1006	288	1415	32	15	396	88	28
Lane Group Flow (vph)	1036	288	1501	0	47	396	88	31
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	4	3	8		2			6
Permitted Phases		8		2		2	6	
Detector Phase	4	3	8	2	2	2	6	6
Switch Phase								
Minimum Initial (s)	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	65.0	19.0	84.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	54.2%	15.8%	70.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead						
Lead-Lag Optimize?								
Recall Mode	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.74	0.88	0.75		0.12	0.62	0.22	0.06
Control Delay (s/veh)	28.2	48.0	17.3		27.7	14.6	29.1	25.0
Queue Delay	0.0	0.0	0.1		0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.2	48.0	17.4		27.7	14.6	29.1	25.0
Queue Length 50th (m)	94.6	35.1	109.8		6.9	18.5	13.3	4.0
Queue Length 95th (m)	119.3	#85.3	136.5		17.6	58.6	29.2	12.2
Internal Link Dist (m)	123.1		82.8		475.0			37.0
Turn Bay Length (m)		25.0					26.0	
Base Capacity (vph)	1914	343	2561		388	630	394	480
Starvation Cap Reductn	0	0	207		0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0
Reduced v/c Ratio	0.54	0.84	0.64		0.12	0.63	0.22	0.06

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 102.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1006	30	288	1415	86	32	15	396	88	28	3
Future Volume (vph)	0	1006	30	288	1415	86	32	15	396	88	28	3
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes		1.00		0.99	1.00			0.99	1.00	0.98	1.00	
Frt		0.99		1.00	0.99			1.00	0.85	1.00	0.98	
Flt Protected		1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)		3196		1650	3264			1424	1410	1649	1525	
Flt Permitted		1.00		0.12	1.00			0.84	1.00	0.72	1.00	
Satd. Flow (perm)		3196		219	3264			1240	1410	1261	1525	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1006	30	288	1415	86	32	15	396	88	28	3
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	189	0	2	0
Lane Group Flow (vph)	0	1034	0	288	1497	0	0	47	207	88	29	0
Confl. Peds. (#/hr)	9		25	25		9	2		11	11		2
Heavy Vehicles (%)	0%	3%	0%	1%	1%	3%	3%	27%	1%	1%	7%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		42.3		60.1	60.1			30.1	30.1	30.1	30.1	
Effective Green, g (s)		44.3		60.1	62.1			32.1	32.1	32.1	32.1	
Actuated g/C Ratio		0.43		0.59	0.61			0.31	0.31	0.31	0.31	
Clearance Time (s)		6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1385		322	1983			389	442	396	478	
v/s Ratio Prot		0.32		c0.12	0.46						0.02	
v/s Ratio Perm				c0.40				0.04	c0.15	0.07		
v/c Ratio		0.74		0.89	0.75			0.12	0.46	0.22	0.06	
Uniform Delay, d1		24.2		22.9	14.5			24.9	28.1	25.8	24.5	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2		25.4	1.6			0.6	3.5	1.2	0.2	
Delay (s)		26.4		48.4	16.2			25.6	31.7	27.1	24.7	
Level of Service		C		D	B			C	C	C	C	
Approach Delay (s/veh)		26.4			21.3			31.0			26.5	
Approach LOS		C			C			C			C	

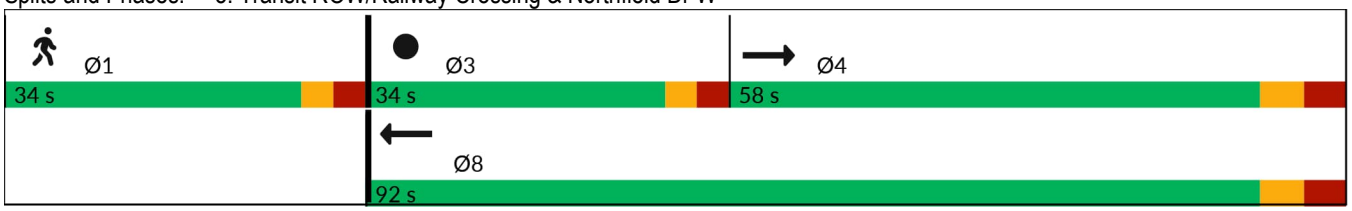
Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	102.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

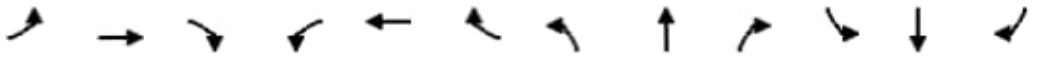
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1490	1789		
Future Volume (vph)	1490	1789		
Lane Group Flow (vph)	1490	1789		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.60	0.61		
Control Delay (s/veh)	24.7	9.2		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	24.7	9.2		
Queue Length 50th (m)	114.0	135.6		
Queue Length 95th (m)	131.9	162.1		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2460	2895		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.61	0.62		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1490	0	0	1789	0	0	0	0	0	0	0
Future Volume (vph)	0	1490	0	0	1789	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		5002			3535							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		5002			3535							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1490	0	0	1789	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1490	0	0	1789	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	9		79	79		9	32		32	32		32
Heavy Vehicles (%)	0%	2%	0%	100%	1%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2405			2766							
v/s Ratio Prot		0.30			c0.51							
v/s Ratio Perm												
v/c Ratio		0.61			0.64							
Uniform Delay, d1		22.0			5.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.2			1.1							
Delay (s)		23.2			6.6							
Level of Service		C			A							
Approach Delay (s/veh)		23.2			6.6			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	107	416	114	93	674
Future Vol, veh/h	43	107	416	114	93	674
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	6	2	0	0	1
Mvmt Flow	43	107	416	114	93	674

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	999	268	0	0	533	0
Stage 1	476	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Critical Hdwy	6.8	7.02	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.36	-	-	2.2	-
Pot Cap-1 Maneuver	244	718	-	-	1045	-
Stage 1	597	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	716	-	-	1043	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.4	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	716	1043	-
HCM Lane V/C Ratio	-	-	0.206	0.149	0.089	-
HCM Control Delay (s/veh)	-	-	26.6	10.9	8.8	0.5
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q (veh)	-	-	0.8	0.5	0.3	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Future Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Conflicting Peds, #/hr	14	0	0	0	0	14	15	0	1	1	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	15	0	0	0	0	0	0	0
Mvmt Flow	97	81	29	0	41	43	14	6	0	20	9	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	98	0	0	110	0	0	330	388	97	371	381	71
Stage 1	-	-	-	-	-	-	290	290	-	77	77	-
Stage 2	-	-	-	-	-	-	40	98	-	294	304	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1508	-	-	1493	-	-	616	550	965	577	555	983
Stage 1	-	-	-	-	-	-	722	676	-	929	835	-
Stage 2	-	-	-	-	-	-	976	818	-	719	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1492	-	-	1493	-	-	513	507	964	535	511	961
Mov Cap-2 Maneuver	-	-	-	-	-	-	513	507	-	535	511	-
Stage 1	-	-	-	-	-	-	672	629	-	856	826	-
Stage 2	-	-	-	-	-	-	860	809	-	662	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	3.6	0	12.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	511	1492	-	-	1493	-	-	535	893
HCM Lane V/C Ratio	0.039	0.065	-	-	-	-	-	0.037	0.116
HCM Control Delay (s/veh)	12.3	7.6	0	-	0	-	-	12	9.6
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0.1	0.2	-	-	0	-	-	0.1	0.4

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Future Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Conflicting Peds, #/hr	0	0	2	4	0	0	0	0	5	5	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	9	0	0	0	1	0	0	0
Mvmt Flow	3	98	0	0	67	34	1	0	73	21	7	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	102	0	0	204	209	107	230	192	84
Stage 1	-	-	-	-	-	-	108	108	-	84	84	-
Stage 2	-	-	-	-	-	-	96	101	-	146	108	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.21	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.309	3.5	4	3.3
Pot Cap-1 Maneuver	1504	-	-	1503	-	-	758	692	950	729	707	981
Stage 1	-	-	-	-	-	-	902	810	-	929	829	-
Stage 2	-	-	-	-	-	-	916	815	-	861	810	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1504	-	-	1498	-	-	737	689	943	669	703	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	689	-	669	703	-
Stage 1	-	-	-	-	-	-	897	806	-	927	829	-
Stage 2	-	-	-	-	-	-	893	815	-	790	806	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0	9.2	10
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	939	1504	-	-	1498	-	-	763
HCM Lane V/C Ratio	0.079	0.002	-	-	-	-	-	0.058
HCM Control Delay (s/veh)	9.2	7.4	0	-	0	-	-	10
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q (veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1010	1388	62	26	34
Future Vol, veh/h	27	1010	1388	62	26	34
Conflicting Peds, #/hr	13	0	0	13	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	2	1	0	8	0
Mvmt Flow	27	1010	1388	62	26	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1463	0	-	0	1994	738
Stage 1	-	-	-	-	1432	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	4.1	-	-	-	6.96	6.9
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	2.2	-	-	-	3.58	3.3
Pot Cap-1 Maneuver	468	-	-	-	49	365
Stage 1	-	-	-	-	176	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	463	-	-	-	42	361
Mov Cap-2 Maneuver	-	-	-	-	42	-
Stage 1	-	-	-	-	151	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.1	0	87.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	463	-	-	-	42	361
HCM Lane V/C Ratio	0.058	-	-	-	0.619	0.094
HCM Control Delay (s/veh)	13.3	0.8	-	-	181.7	16
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.3	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1484	11	0	1747	124	0	0	43	0	0	45
Future Vol, veh/h	0	1484	11	0	1747	124	0	0	43	0	0	45
Conflicting Peds, #/hr	4	0	2	2	0	4	36	0	0	0	0	36
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	3	0	0	2	0	0	4
Mvmt Flow	0	1484	11	0	1747	124	0	0	43	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	750	-	-	976
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.34
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	304	0	0	247
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	304	-	-	239
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	18.8	23.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	304	-	-	-	-	239
HCM Lane V/C Ratio	0.141	-	-	-	-	0.188
HCM Control Delay (s/veh)	18.8	-	-	-	-	23.5
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.5	-	-	-	-	0.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Future Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	1	0	73	0	0	0	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	78	77	4	77	80	73	7	0	0	73	0	0
Stage 1	4	4	-	73	73	-	-	-	-	-	-	-
Stage 2	74	73	-	4	7	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	916	817	1085	917	814	995	1627	-	-	1540	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	940	838	-	1024	894	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	817	1085	917	814	995	1627	-	-	1540	-	-
Mov Cap-2 Maneuver	915	817	-	917	814	-	-	-	-	-	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	939	838	-	1024	894	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1627	-	-	-	995	1540	-	-
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	8.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Future Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	50	0	0	5	0	12	30	11	5	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	81	77	1	75	75	14	1	0	0	16	0	0
Stage 1	1	1	-	74	74	-	-	-	-	-	-	-
Stage 2	80	76	-	1	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	912	817	1090	920	819	1072	1635	-	-	1615	-	-
Stage 1	1027	899	-	940	837	-	-	-	-	-	-	-
Stage 2	934	836	-	1027	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	888	801	1090	907	803	1072	1635	-	-	1615	-	-
Mov Cap-2 Maneuver	888	801	-	907	803	-	-	-	-	-	-	-
Stage 1	1007	899	-	922	821	-	-	-	-	-	-	-
Stage 2	906	820	-	1027	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.3	8.6	4.7	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	888	1018	1615	-	-
HCM Lane V/C Ratio	0.018	-	-	0.056	0.017	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	9.3	8.6	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Future Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	37	4	0	11	37	35	5	0	5	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	122	119	5	136	117	38	5	0	0	40	0	0
Stage 1	5	5	-	112	112	-	-	-	-	-	-	-
Stage 2	117	114	-	24	5	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	858	775	1084	840	777	1040	1630	-	-	1583	-	-
Stage 1	1022	896	-	898	807	-	-	-	-	-	-	-
Stage 2	892	805	-	999	896	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	834	757	1084	797	759	1040	1630	-	-	1583	-	-
Mov Cap-2 Maneuver	834	757	-	797	759	-	-	-	-	-	-	-
Stage 1	998	896	-	877	788	-	-	-	-	-	-	-
Stage 2	862	786	-	965	896	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	8.8	3.5	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1630	-	-	1084	962	1583	-	-
HCM Lane V/C Ratio	0.023	-	-	0.034	0.016	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Future Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	11	1	0	0	11	77	1	0	46	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	146	146	46	152	146	78	46	0	0	78	0	0
Stage 1	46	46	-	100	100	-	-	-	-	-	-	-
Stage 2	100	100	-	52	46	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	827	749	1029	820	749	988	1575	-	-	1533	-	-
Stage 1	973	861	-	911	816	-	-	-	-	-	-	-
Stage 2	911	816	-	966	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	823	744	1029	807	744	988	1575	-	-	1533	-	-
Mov Cap-2 Maneuver	823	744	-	807	744	-	-	-	-	-	-	-
Stage 1	966	861	-	905	810	-	-	-	-	-	-	-
Stage 2	905	810	-	956	861	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.5	9.5	0.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1029	807	1533	-	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.5	9.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	101	119	0
Future Vol, veh/h	0	2	1	101	119	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	6	1	0
Mvmt Flow	0	2	1	101	119	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	222	119	119	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	771	724	1032	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	724	1032	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1032	-	724	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

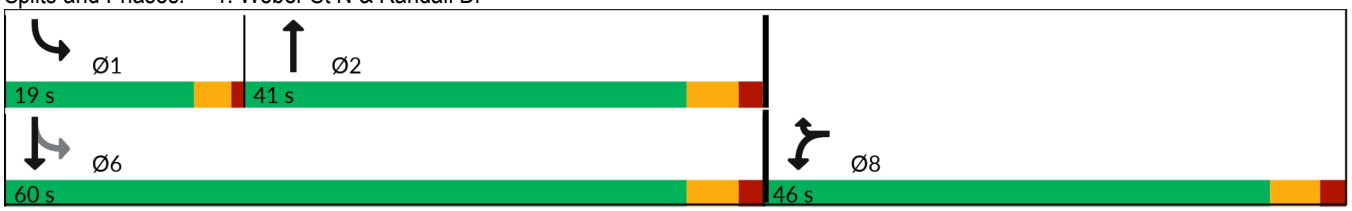
2041 Future Background Intersection Capacity Analysis

Weekday AM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	72	24	270	45	399
Future Volume (vph)	72	24	270	45	399
Lane Group Flow (vph)	72	24	378	45	399
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.33	0.10	0.31	0.06	0.28
Control Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	12.5	7.2	3.2	3.8
Queue Length 50th (m)	9.8	0.0	23.4	1.4	15.1
Queue Length 95th (m)	21.5	6.1	45.9	4.3	30.4
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	767	788	1207	777	1413
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.31	0.06	0.28

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randall Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	24	270	108	45	399
Future Volume (vph)	72	24	270	108	45	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1696		1605	1789
Flt Permitted	0.95	1.00	1.00		0.47	1.00
Satd. Flow (perm)	1394	1413	1696		795	1789
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	24	270	108	45	399
RTOR Reduction (vph)	0	21	7	0	0	0
Lane Group Flow (vph)	72	3	371	0	45	399
Confl. Peds. (#/hr)				6	6	
Heavy Vehicles (%)	28%	13%	6%	5%	11%	5%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	8.1	8.1	51.3		59.1	59.1
Effective Green, g (s)	10.1	10.1	53.3		59.1	61.1
Actuated g/C Ratio	0.13	0.13	0.67		0.75	0.77
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	180	1141		632	1380
v/s Ratio Prot	c0.05	0.00	c0.22		0.00	c0.22
v/s Ratio Perm					0.05	
v/c Ratio	0.40	0.01	0.32		0.07	0.28
Uniform Delay, d1	31.7	30.2	5.4		2.9	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.0	0.7		0.0	0.5
Delay (s)	33.3	30.2	6.1		2.9	3.1
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	32.5		6.1			3.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

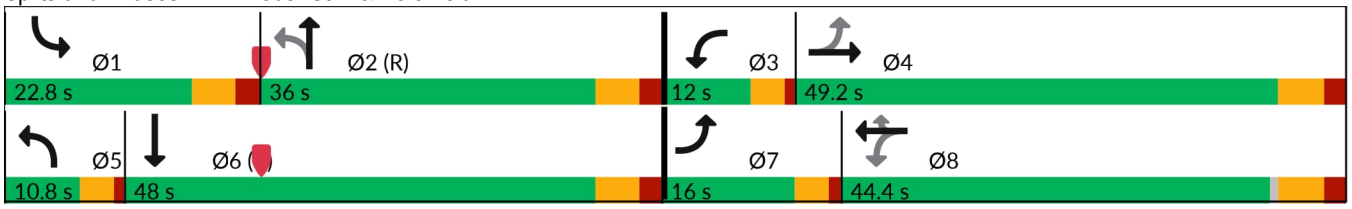
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	144	955	68	571	122	31	110	161	254
Future Volume (vph)	144	955	68	571	122	31	110	161	254
Lane Group Flow (vph)	144	1039	68	571	122	31	209	161	308
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.5	44.4	9.0	44.4	44.4	9.5	36.0	13.0	36.0
Total Split (s)	16.0	49.2	12.0	44.4	44.4	10.8	36.0	22.8	48.0
Total Split (%)	13.3%	41.0%	10.0%	37.0%	37.0%	9.0%	30.0%	19.0%	40.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
v/c Ratio	0.41	0.84	0.42	0.49	0.21	0.09	0.24	0.34	0.26
Control Delay (s/veh)	21.8	41.5	26.0	32.9	2.8	19.9	18.6	47.4	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.8	41.5	26.0	32.9	2.8	19.9	18.6	47.4	25.1
Queue Length 50th (m)	19.9	121.6	9.0	58.5	0.0	4.2	10.9	18.5	25.6
Queue Length 95th (m)	33.2	151.0	17.6	76.1	7.5	10.1	21.3	29.4	37.1
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	349	1231	161	1158	572	340	848	471	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.84	0.42	0.49	0.21	0.09	0.25	0.34	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15.6 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Pretimed

Splits and Phases: 2: Weber St N & Northfield Dr W



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	955	84	68	571	122	31	110	99	161	254	54
Future Volume (vph)	144	955	84	68	571	122	31	110	99	161	254	54
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3255		1555	3373	1371	1590	2908		3010	3135	
Flt Permitted	0.27	1.00		0.10	1.00	1.00	0.56	1.00		0.95	1.00	
Satd. Flow (perm)	487	3255		168	3373	1371	945	2908		3010	3135	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	955	84	68	571	122	31	110	99	161	254	54
RTOR Reduction (vph)	0	6	0	0	0	80	0	73	0	0	15	0
Lane Group Flow (vph)	144	1033	0	68	571	42	31	136	0	161	293	0
Confl. Peds. (#/hr)	3		16	16		3	16		14	14		16
Heavy Vehicles (%)	0%	1%	1%	6%	5%	4%	3%	7%	3%	8%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	55.2	43.2		47.2	39.2	39.2	36.8	30.0		16.8	42.0	
Effective Green, g (s)	55.2	45.2		47.2	41.2	41.2	36.8	32.0		18.8	44.0	
Actuated g/C Ratio	0.46	0.38		0.39	0.34	0.34	0.31	0.27		0.16	0.37	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	342	1226		158	1158	470	326	775		471	1149	
v/s Ratio Prot	c0.04	c0.32		0.03	0.17		0.01	0.05		c0.05	c0.09	
v/s Ratio Perm	0.15			0.14		0.03	0.02					
v/c Ratio	0.42	0.84		0.43	0.49	0.08	0.09	0.17		0.34	0.25	
Uniform Delay, d1	20.4	34.1		26.0	31.1	26.6	29.4	33.8		45.0	26.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	7.1		8.3	1.5	0.3	0.5	0.4		1.9	0.5	
Delay (s)	24.2	41.3		34.4	32.6	27.0	29.9	34.3		47.0	27.0	
Level of Service	C	D		C	C	C	C	C		D	C	
Approach Delay (s/veh)		39.2			31.9			33.7			33.9	
Approach LOS		D			C			C			C	

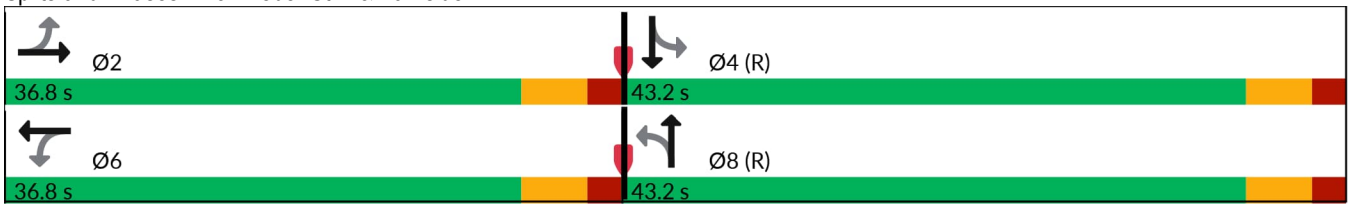
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

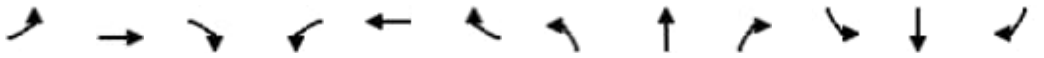
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	62	166	76	191	16	165	30	290
Future Volume (vph)	62	166	76	191	16	165	30	290
Lane Group Flow (vph)	62	215	76	204	16	237	30	376
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (%)	46.0%	46.0%	46.0%	46.0%	54.0%	54.0%	54.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.15	0.33	0.20	0.30	0.04	0.17	0.06	0.25
Control Delay (s/veh)	16.2	16.0	17.0	17.1	12.1	8.1	12.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.2	16.0	17.0	17.1	12.1	8.1	12.4	10.1
Queue Length 50th (m)	6.1	20.1	7.6	20.8	1.3	7.1	2.5	14.0
Queue Length 95th (m)	14.2	36.7	17.1	36.8	4.7	13.4	7.2	22.5
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	404	648	378	664	385	1374	458	1465
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.33	0.20	0.31	0.04	0.17	0.07	0.26

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42.7 (53%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Future Volume (vph)	62	166	49	76	191	13	16	165	72	30	290	86
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1587	1549		1516	1615		1535	2731		1550	2920	
Flt Permitted	0.59	1.00		0.57	1.00		0.51	1.00		0.60	1.00	
Satd. Flow (perm)	987	1549		922	1615		830	2731		986	2920	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	166	49	76	191	13	16	165	72	30	290	86
RTOR Reduction (vph)	0	14	0	0	3	0	0	37	0	0	35	0
Lane Group Flow (vph)	62	201	0	76	201	0	16	200	0	30	341	0
Confl. Peds. (#/hr)	1		13	13		1	3					3
Heavy Vehicles (%)	5%	1%	2%	8%	0%	0%	0%	7%	10%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		37.2	37.2		37.2	37.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8		37.2	39.2		37.2	39.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.49		0.47	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	404	635		378	662		385	1338		458	1430	
v/s Ratio Prot		c0.13			0.12			0.07			c0.12	
v/s Ratio Perm	0.06			0.08			0.02			0.03		
v/c Ratio	0.15	0.31		0.20	0.30		0.04	0.14		0.06	0.23	
Uniform Delay, d1	14.8	16.0		15.1	15.9		11.6	11.2		11.8	11.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.3		1.1	1.1		0.2	0.2		0.2	0.3	
Delay (s)	15.6	17.3		16.3	17.0		11.8	11.4		12.0	12.1	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s/veh)		16.9			16.8			11.4			12.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

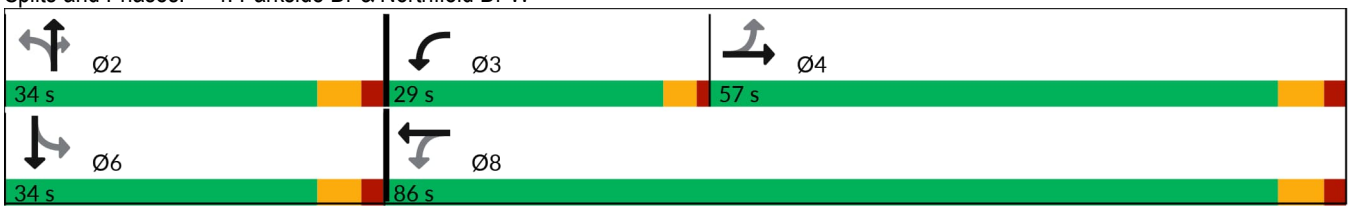
c Critical Lane Group

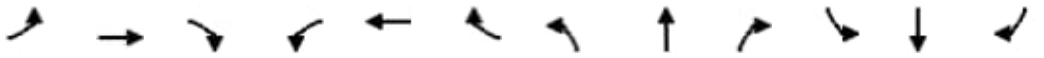
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	1198	393	794	16	8	215	45	10
Future Volume (vph)	2	1198	393	794	16	8	215	45	10
Lane Group Flow (vph)	2	1222	393	850	0	24	215	45	11
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	40.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	57.0	57.0	29.0	86.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	47.5%	47.5%	24.2%	71.7%	28.3%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.90	0.95	0.39		0.07	0.41	0.13	0.03
Control Delay (s/veh)	19.0	41.5	69.8	8.8		35.2	7.3	36.3	32.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.0	41.5	69.8	8.8		35.2	7.3	36.3	32.4
Queue Length 50th (m)	0.3	141.8	80.4	42.7		4.6	0.0	8.7	1.9
Queue Length 95th (m)	2.0	174.9	#145.9	54.0		12.0	19.6	19.2	6.9
Internal Link Dist (m)		123.1		82.8		475.0			54.4
Turn Bay Length (m)	35.0		25.0					30.0	
Base Capacity (vph)	264	1435	410	2212		322	520	323	352
Starvation Cap Reductn	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.01	0.85	0.96	0.38		0.07	0.41	0.14	0.03

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 117.2
Natural Cycle: 100
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1198	24	393	794	56	16	8	215	45	10	1
Future Volume (vph)	2	1198	24	393	794	56	16	8	215	45	10	1
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.98	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1663	3166		1635	3151			1390	1408	1614	1372	
Flt Permitted	0.33	1.00		0.07	1.00			0.87	1.00	0.74	1.00	
Satd. Flow (perm)	582	3166		132	3151			1256	1408	1260	1372	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	1198	24	393	794	56	16	8	215	45	10	1
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	160	0	1	0
Lane Group Flow (vph)	2	1221	0	393	845	0	0	24	55	45	10	0
Confl. Peds. (#/hr)	6		18	18		6	10		3	3		10
Heavy Vehicles (%)	0%	4%	8%	2%	4%	13%	0%	38%	2%	4%	20%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	48.1	48.1		77.1	77.1			28.0	28.0	28.0	28.0	
Effective Green, g (s)	50.1	50.1		77.1	79.1			30.0	30.0	30.0	30.0	
Actuated g/C Ratio	0.43	0.43		0.66	0.68			0.26	0.26	0.26	0.26	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	249	1354		407	2128			321	360	322	351	
v/s Ratio Prot		0.39		c0.21	0.27						0.01	
v/s Ratio Perm	0.00			c0.43				0.02	c0.04	0.04		
v/c Ratio	0.00	0.90		0.96	0.39			0.07	0.15	0.13	0.02	
Uniform Delay, d1	19.2	31.2		36.6	8.4			33.0	33.7	33.5	32.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	8.5		35.3	0.1			0.4	0.9	0.9	0.1	
Delay (s)	19.2	39.7		72.0	8.5			33.4	34.6	34.5	32.7	
Level of Service	B	D		E	A			C	C	C	C	
Approach Delay (s/veh)		39.7			28.6			34.5			34.1	
Approach LOS		D			C			C			C	

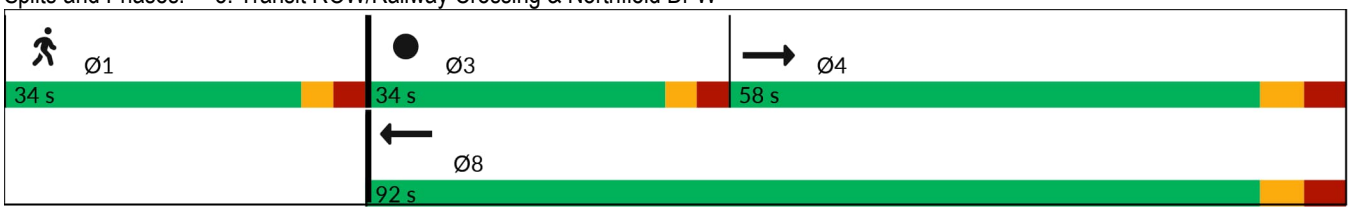
Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

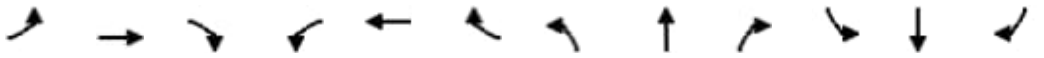
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1458	1243		
Future Volume (vph)	1458	1243		
Lane Group Flow (vph)	1458	1243		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.60	0.43		
Control Delay (s/veh)	24.7	6.7		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	24.7	6.7		
Queue Length 50th (m)	111.5	72.6		
Queue Length 95th (m)	129.4	87.7		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2838		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.60	0.44		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1458	0	0	1243	0	0	0	0	0	0	0
Future Volume (vph)	0	1458	0	0	1243	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3466							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3466							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1458	0	0	1243	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1458	0	0	1243	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	19		59	59		19	26		26	26		26
Heavy Vehicles (%)	0%	4%	0%	100%	3%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2712							
v/s Ratio Prot		c0.30			c0.36							
v/s Ratio Perm												
v/c Ratio		0.61			0.45							
Uniform Delay, d1		22.0			4.2							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.2			0.5							
Delay (s)		23.2			4.7							
Level of Service		C			A							
Approach Delay (s/veh)		23.2			4.7			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	63	315	61	52	419
Future Vol, veh/h	50	63	315	61	52	419
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	14	4	0	2	5
Mvmt Flow	50	63	315	61	52	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	662	190	0	0	378	0
Stage 1	348	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.8	7.18	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.44	-	-	2.22	-
Pot Cap-1 Maneuver	399	783	-	-	1177	-
Stage 1	692	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	782	-	-	1175	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.7	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	375	782	1175	-
HCM Lane V/C Ratio	-	-	0.133	0.081	0.044	-
HCM Control Delay (s/veh)	-	-	16.1	10	8.2	0.2
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	0.5	0.3	0.1	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Future Vol, veh/h	106	3	4	0	9	48	0	5	0	45	14	104
Conflicting Peds, #/hr	2	0	0	0	0	2	5	0	3	3	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	33	0	0	100	0	0	0	0	0	0	0
Mvmt Flow	106	3	4	0	9	48	0	5	0	45	14	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	7	0	0	234	276	8	258	254	36
Stage 1	-	-	-	-	-	-	217	217	-	35	35	-
Stage 2	-	-	-	-	-	-	17	59	-	223	219	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1558	-	-	1627	-	-	716	635	1080	689	653	1035
Stage 1	-	-	-	-	-	-	790	727	-	982	870	-
Stage 2	-	-	-	-	-	-	1006	850	-	784	726	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1556	-	-	1627	-	-	597	591	1077	646	607	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	591	-	646	607	-
Stage 1	-	-	-	-	-	-	736	678	-	914	868	-
Stage 2	-	-	-	-	-	-	886	848	-	724	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	7	0	11.1	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	591	1556	-	-	1627	-	-	646	951
HCM Lane V/C Ratio	0.008	0.068	-	-	-	-	-	0.07	0.124
HCM Control Delay (s/veh)	11.1	7.5	0	-	0	-	-	11	9.3
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0	0.2	-	-	0	-	-	0.2	0.4

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Future Vol, veh/h	2	46	0	0	56	10	0	7	1	10	13	1
Conflicting Peds, #/hr	3	0	3	3	0	3	5	0	2	2	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	16	0	0	0	100	0	0	0
Mvmt Flow	2	46	0	0	56	10	0	7	1	10	13	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	49	0	0	126	122	51	120	117	69
Stage 1	-	-	-	-	-	-	53	53	-	64	64	-
Stage 2	-	-	-	-	-	-	73	69	-	56	53	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	7.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	4.2	3.5	4	3.3
Pot Cap-1 Maneuver	1545	-	-	1571	-	-	852	772	797	860	777	1000
Stage 1	-	-	-	-	-	-	965	855	-	952	846	-
Stage 2	-	-	-	-	-	-	942	841	-	961	855	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1541	-	-	1567	-	-	834	768	794	849	773	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	834	768	-	849	773	-
Stage 1	-	-	-	-	-	-	962	852	-	949	844	-
Stage 2	-	-	-	-	-	-	923	839	-	949	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0	9.7	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	771	1541	-	-	1567	-	-	811
HCM Lane V/C Ratio	0.01	0.001	-	-	-	-	-	0.03
HCM Control Delay (s/veh)	9.7	7.3	0	-	0	-	-	9.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	1204	745	66	20	16
Future Vol, veh/h	11	1204	745	66	20	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	4	0	10	0
Mvmt Flow	11	1204	745	66	20	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	811	0	-	0	1402	406
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	624	-
Critical Hdwy	4.1	-	-	-	7	6.9
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	2.2	-	-	-	3.6	3.3
Pot Cap-1 Maneuver	824	-	-	-	122	600
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	824	-	-	-	117	600
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	475	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.3	0	28.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	824	-	-	-	117	600
HCM Lane V/C Ratio	0.013	-	-	-	0.171	0.027
HCM Control Delay (s/veh)	9.4	0.2	-	-	42	11.2
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q (veh)	0	-	-	-	0.6	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1411	53	0	1216	219	0	0	17	0	0	33
Future Vol, veh/h	0	1411	53	0	1216	219	0	0	17	0	0	33
Conflicting Peds, #/hr	3	0	3	3	0	3	10	0	0	0	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	5	0	0	0	0	0	9
Mvmt Flow	0	1411	53	0	1216	219	0	0	17	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	735	-	-	731
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	314	0	0	349
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	313	-	-	345
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	17.2	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	313	-	-	-	-	345
HCM Lane V/C Ratio	0.054	-	-	-	-	0.096
HCM Control Delay (s/veh)	17.2	-	-	-	-	16.5
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Future Vol, veh/h	7	0	0	0	0	0	0	1	0	0	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	0	0	0	0	0	1	0	0	0	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	8	8	7	8	14	1	13	0	0	1	0	0
Stage 1	7	7	-	1	1	-	-	-	-	-	-	-
Stage 2	1	1	-	7	13	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1016	891	1081	1016	884	1090	1619	-	-	1635	-	-
Mov Cap-2 Maneuver	1016	891	-	1016	884	-	-	-	-	-	-	-
Stage 1	1020	894	-	1027	899	-	-	-	-	-	-	-
Stage 2	1027	899	-	1020	889	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1016	-	1635	-	-
HCM Lane V/C Ratio	-	-	-	0.007	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	8.6	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Future Vol, veh/h	0	0	8	4	0	1	22	0	18	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	8	4	0	1	22	0	18	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	55	63	1	58	54	9	1	0	0	18	0	0
Stage 1	1	1	-	53	53	-	-	-	-	-	-	-
Stage 2	54	62	-	5	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	948	832	1090	944	841	1079	1635	-	-	1612	-	-
Stage 1	1027	899	-	965	855	-	-	-	-	-	-	-
Stage 2	963	847	-	1022	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	937	820	1090	927	829	1079	1635	-	-	1612	-	-
Mov Cap-2 Maneuver	937	820	-	927	829	-	-	-	-	-	-	-
Stage 1	1013	899	-	951	843	-	-	-	-	-	-	-
Stage 2	949	835	-	1014	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.8	4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	954	1612	-	-
HCM Lane V/C Ratio	0.013	-	-	0.007	0.005	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Future Vol, veh/h	0	0	17	3	0	0	11	40	15	0	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	17	3	0	0	11	40	15	0	12	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	82	89	12	91	82	48	12	0	0	55	0	0
Stage 1	12	12	-	70	70	-	-	-	-	-	-	-
Stage 2	70	77	-	21	12	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	910	805	1074	898	812	1027	1620	-	-	1563	-	-
Stage 1	1014	890	-	945	841	-	-	-	-	-	-	-
Stage 2	945	835	-	1003	890	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	905	799	1074	879	806	1027	1620	-	-	1563	-	-
Mov Cap-2 Maneuver	905	799	-	879	806	-	-	-	-	-	-	-
Stage 1	1007	890	-	938	835	-	-	-	-	-	-	-
Stage 2	938	829	-	987	890	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.1	1.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	1074	879	1563	-	-
HCM Lane V/C Ratio	0.007	-	-	0.016	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.4	9.1	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Future Vol, veh/h	0	0	3	1	0	0	8	66	3	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	3	1	0	0	8	66	3	0	32	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	117	32	118	116	68	32	0	0	69	0	0
Stage 1	32	32	-	84	84	-	-	-	-	-	-	-
Stage 2	84	85	-	34	32	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	865	777	1048	863	778	1001	1593	-	-	1545	-	-
Stage 1	990	872	-	929	829	-	-	-	-	-	-	-
Stage 2	929	828	-	987	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	862	773	1048	857	774	1001	1593	-	-	1545	-	-
Mov Cap-2 Maneuver	862	773	-	857	774	-	-	-	-	-	-	-
Stage 1	985	872	-	924	825	-	-	-	-	-	-	-
Stage 2	924	824	-	984	872	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	9.2	0.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	1048	857	1545	-	-
HCM Lane V/C Ratio	0.005	-	-	0.003	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	66	56	0
Future Vol, veh/h	0	2	1	66	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	14	4	0
Mvmt Flow	0	2	1	66	56	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	124	56	56	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	876	792	1099	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	875	792	1099	-	-	-
Mov Cap-2 Maneuver	875	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.6	0.1	0
HCM LOS	A		

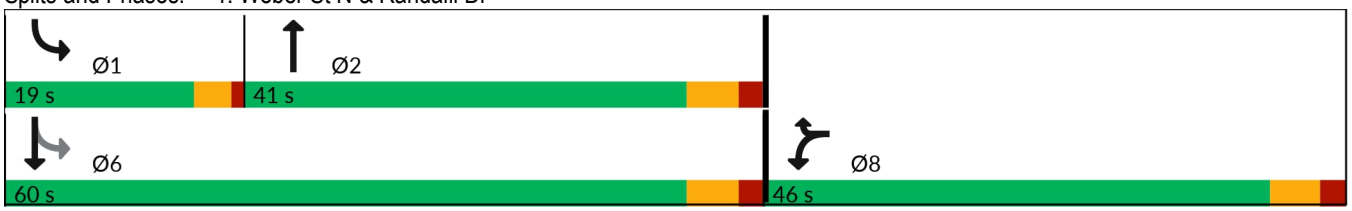
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1099	-	792	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.3	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Weekday PM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	136	451	28	472
Future Volume (vph)	295	136	451	28	472
Lane Group Flow (vph)	295	136	523	28	472
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	8.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.68	0.28	0.52	0.07	0.39
Control Delay (s/veh)	37.4	7.4	16.9	7.1	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	7.4	16.9	7.1	9.0
Queue Length 50th (m)	46.1	1.7	45.0	1.5	33.6
Queue Length 95th (m)	72.5	14.8	115.3	5.6	67.5
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	831	814	991	481	1201
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.17	0.53	0.06	0.39

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 86.1
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randalll Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	295	136	451	72	28	472
Future Volume (vph)	295	136	451	72	28	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	8.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1700	1536	1772		1351	1842
Flt Permitted	0.95	1.00	1.00		0.36	1.00
Satd. Flow (perm)	1700	1536	1772		513	1842
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	295	136	451	72	28	472
RTOR Reduction (vph)	0	93	4	0	0	0
Lane Group Flow (vph)	295	43	519	0	28	472
Confl. Peds. (#/hr)				5	5	
Heavy Vehicles (%)	5%	4%	3%	8%	32%	2%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	19.9	19.9	50.0		56.6	56.6
Effective Green, g (s)	21.9	21.9	48.0		56.6	58.6
Actuated g/C Ratio	0.25	0.25	0.54		0.64	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	420	380	961		352	1219
v/s Ratio Prot	c0.17	0.03	c0.29		0.00	c0.26
v/s Ratio Perm					0.05	
v/c Ratio	0.70	0.11	0.54		0.07	0.38
Uniform Delay, d1	30.3	25.7	13.1		6.8	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	0.1	2.1		0.0	0.9
Delay (s)	35.5	25.9	15.2		6.9	7.7
Level of Service	D	C	B		A	A
Approach Delay (s/veh)	32.5		15.2			7.6
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

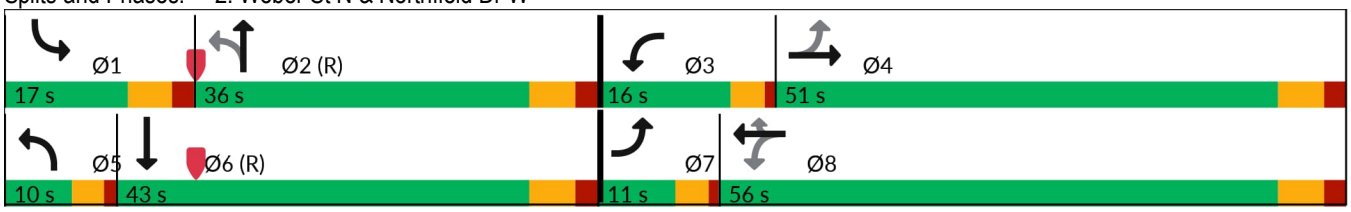
c Critical Lane Group

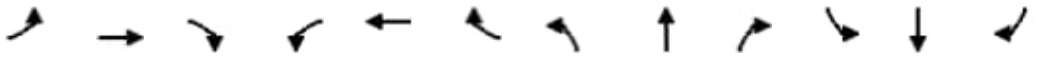
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	112	751	133	1193	154	64	264	258	304
Future Volume (vph)	112	751	133	1193	154	64	264	258	304
Lane Group Flow (vph)	112	820	133	1193	154	64	336	258	457
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.0	44.4	9.0	44.4	44.4	9.0	33.6	13.0	33.6
Total Split (s)	11.0	51.0	16.0	56.0	56.0	10.0	36.0	17.0	43.0
Total Split (%)	9.2%	42.5%	13.3%	46.7%	46.7%	8.3%	30.0%	14.2%	35.8%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	8.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
v/c Ratio	0.71	0.64	0.45	0.78	0.24	0.22	0.38	0.75	0.43
Control Delay (s/veh)	44.9	32.1	20.0	33.7	4.4	24.5	34.3	66.8	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.9	32.1	20.0	33.7	4.4	24.5	34.3	66.8	27.5
Queue Length 50th (m)	13.6	84.9	16.5	131.2	0.0	9.6	32.7	32.5	38.4
Queue Length 95th (m)	#39.1	107.3	27.8	159.8	13.1	19.1	46.9	#51.0	54.2
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	157	1279	292	1519	640	287	876	341	1061
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.64	0.46	0.79	0.24	0.22	0.38	0.76	0.43

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	751	69	133	1193	154	64	264	72	258	304	153
Future Volume (vph)	112	751	69	133	1193	154	64	264	72	258	304	153
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	8.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1635	3255		1616	3506	1368	1604	3208		3156	3104	
Flt Permitted	0.09	1.00		0.18	1.00	1.00	0.46	1.00		0.95	1.00	
Satd. Flow (perm)	159	3255		309	3506	1368	784	3208		3156	3104	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	751	69	133	1193	154	64	264	72	258	304	153
RTOR Reduction (vph)	0	5	0	0	0	92	0	21	0	0	52	0
Lane Group Flow (vph)	112	815	0	133	1193	62	64	315	0	258	405	0
Confl. Peds. (#/hr)	16		18	18		16	26		13	13		26
Heavy Vehicles (%)	2%	1%	0%	2%	1%	3%	2%	0%	0%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	52.0	45.0		61.0	50.0	50.0	36.0	30.0		11.0	37.0	
Effective Green, g (s)	52.0	47.0		61.0	52.0	48.0	36.0	32.0		13.0	39.0	
Actuated g/C Ratio	0.43	0.39		0.51	0.43	0.40	0.30	0.27		0.11	0.33	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	155	1274		287	1519	547	276	855		341	1008	
v/s Ratio Prot	c0.04	0.25		0.05	c0.34		0.01	0.10		c0.08	c0.13	
v/s Ratio Perm	0.27			0.19		0.05	0.06					
v/c Ratio	0.72	0.63		0.46	0.78	0.11	0.23	0.36		0.75	0.40	
Uniform Delay, d1	25.0	29.6		18.6	29.2	22.6	30.6	35.7		51.9	31.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.1	2.4		5.3	4.1	0.4	1.9	1.2		14.4	1.1	
Delay (s)	50.1	32.0		23.9	33.3	23.0	32.5	37.0		66.4	32.6	
Level of Service	D	C		C	C	C	C	D		E	C	
Approach Delay (s/veh)		34.2			31.4			36.3			44.8	
Approach LOS		C			C			D			D	

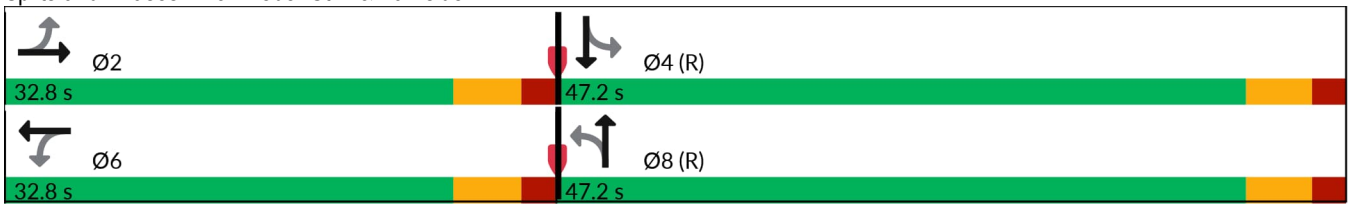
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

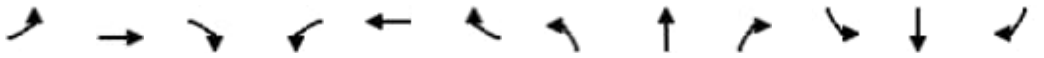
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	64	215	110	261	67	311	35	396
Future Volume (vph)	64	215	110	261	67	311	35	396
Lane Group Flow (vph)	64	264	110	286	67	432	35	471
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (%)	41.0%	41.0%	41.0%	41.0%	59.0%	59.0%	59.0%	59.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.21	0.46	0.37	0.49	0.17	0.26	0.08	0.28
Control Delay (s/veh)	20.2	21.6	23.7	22.9	11.9	7.6	10.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	21.6	23.7	22.9	11.9	7.6	10.6	9.5
Queue Length 50th (m)	7.0	29.8	12.8	34.0	5.4	13.0	2.7	18.0
Queue Length 95th (m)	16.5	51.5	27.2	57.3	12.7	20.9	7.4	26.9
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	295	568	292	581	381	1613	407	1645
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.46	0.38	0.49	0.18	0.27	0.09	0.29

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2.4 (3%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Future Volume (vph)	64	215	49	110	261	25	67	311	121	35	396	75
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	1552		1552	1602		1531	2893		1549	3012	
Flt Permitted	0.46	1.00		0.49	1.00		0.46	1.00		0.48	1.00	
Satd. Flow (perm)	821	1552		812	1602		741	2893		790	3012	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	215	49	110	261	25	67	311	121	35	396	75
RTOR Reduction (vph)	0	10	0	0	4	0	0	52	0	0	19	0
Lane Group Flow (vph)	64	254	0	110	282	0	67	380	0	35	452	0
Confl. Peds. (#/hr)	6		20	20		6	9		3	3		9
Heavy Vehicles (%)	0%	2%	0%	5%	0%	4%	0%	1%	4%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.8	26.8		26.8	26.8		41.2	41.2		41.2	41.2	
Effective Green, g (s)	28.8	28.8		28.8	28.8		41.2	43.2		41.2	43.2	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.52	0.54		0.52	0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	295	558		292	576		381	1562		406	1626	
v/s Ratio Prot		0.16			c0.18			0.13			c0.15	
v/s Ratio Perm	0.08			0.14			0.09			0.04		
v/c Ratio	0.21	0.45		0.37	0.48		0.17	0.24		0.08	0.27	
Uniform Delay, d1	17.7	19.5		18.9	19.8		10.3	9.7		9.8	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	2.6		3.6	2.9		1.0	0.3		0.4	0.4	
Delay (s)	19.4	22.2		22.6	22.8		11.3	10.1		10.2	10.3	
Level of Service	B	C		C	C		B	B		B	B	
Approach Delay (s/veh)		21.7			22.7			10.2			10.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	118.8%	ICU Level of Service	H
Analysis Period (min)	15		

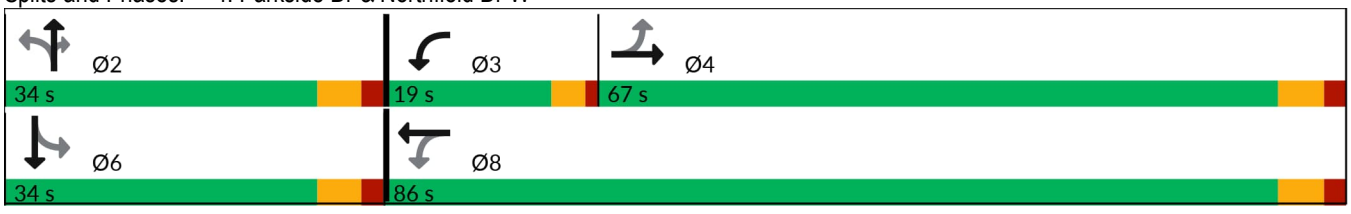
c Critical Lane Group

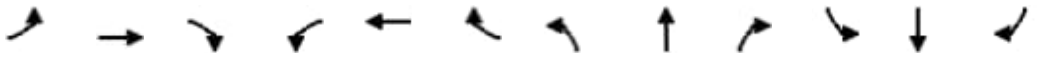
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1050	288	1473	32	15	396	88	28
Future Volume (vph)	1050	288	1473	32	15	396	88	28
Lane Group Flow (vph)	1080	288	1559	0	47	396	88	31
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	4	3	8		2			6
Permitted Phases		8		2		2	6	
Detector Phase	4	3	8	2	2	2	6	6
Switch Phase								
Minimum Initial (s)	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	67.0	19.0	86.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	55.8%	15.8%	71.7%	28.3%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead						
Lead-Lag Optimize?								
Recall Mode	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.75	0.88	0.76		0.12	0.65	0.23	0.06
Control Delay (s/veh)	27.3	49.6	16.7		28.5	16.0	30.0	25.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.3	49.6	16.8		28.5	16.0	30.0	25.6
Queue Length 50th (m)	96.4	35.3	110.8		6.9	20.0	13.3	4.0
Queue Length 95th (m)	121.5	#86.2	138.5		17.9	61.6	29.7	12.5
Internal Link Dist (m)	123.1		82.8		475.0			54.4
Turn Bay Length (m)		25.0					30.0	
Base Capacity (vph)	2033	343	2678		371	609	376	459
Starvation Cap Reductn	0	0	208		0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0
Reduced v/c Ratio	0.53	0.84	0.63		0.13	0.65	0.23	0.07

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 100.3
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1050	30	288	1473	86	32	15	396	88	28	3
Future Volume (vph)	0	1050	30	288	1473	86	32	15	396	88	28	3
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes		1.00		0.99	1.00			0.99	1.00	0.98	1.00	
Frt		0.99		1.00	0.99			1.00	0.85	1.00	0.98	
Flt Protected		1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)		3227		1650	3266			1424	1411	1649	1525	
Flt Permitted		1.00		0.11	1.00			0.84	1.00	0.72	1.00	
Satd. Flow (perm)		3227		205	3266			1238	1411	1261	1525	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1050	30	288	1473	86	32	15	396	88	28	3
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	188	0	2	0
Lane Group Flow (vph)	0	1078	0	288	1555	0	0	47	208	88	29	0
Confl. Peds. (#/hr)	9		25	25		9	2		11	11		2
Heavy Vehicles (%)	0%	2%	0%	1%	1%	3%	3%	27%	1%	1%	7%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		42.5		60.2	60.2			28.1	28.1	28.1	28.1	
Effective Green, g (s)		44.5		60.2	62.2			30.1	30.1	30.1	30.1	
Actuated g/C Ratio		0.44		0.60	0.62			0.30	0.30	0.30	0.30	
Clearance Time (s)		6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1431		320	2025			371	423	378	457	
v/s Ratio Prot		0.33		c0.12	0.48						0.02	
v/s Ratio Perm				c0.42				0.04	c0.15	0.07		
v/c Ratio		0.75		0.90	0.76			0.12	0.49	0.23	0.06	
Uniform Delay, d1		23.3		23.7	13.8			25.5	28.8	26.4	25.0	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2		26.6	1.8			0.7	4.0	1.4	0.2	
Delay (s)		25.6		50.4	15.6			26.2	32.8	27.8	25.3	
Level of Service		C		D	B			C	C	C	C	
Approach Delay (s/veh)		25.6			21.0			32.1			27.1	
Approach LOS		C			C			C			C	

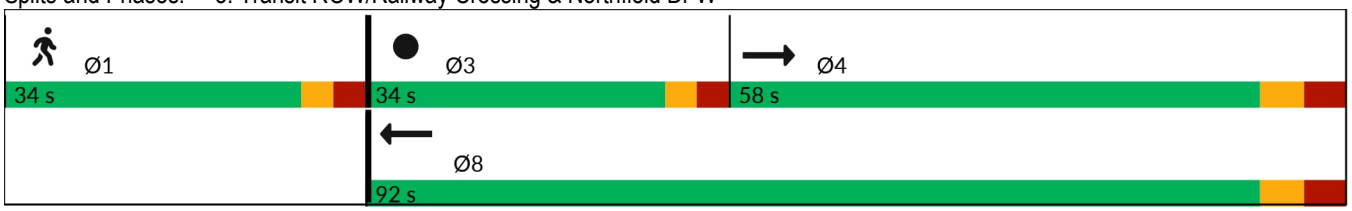
Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	113.2%	ICU Level of Service	H
Analysis Period (min)	15		

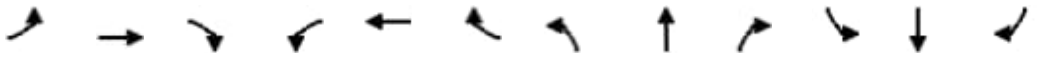
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1534	1847		
Future Volume (vph)	1534	1847		
Lane Group Flow (vph)	1534	1847		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.62	0.63		
Control Delay (s/veh)	25.1	9.6		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	25.1	9.6		
Queue Length 50th (m)	118.9	144.8		
Queue Length 95th (m)	137.2	173.2		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2460	2895		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.62	0.64		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1534	0	0	1847	0	0	0	0	0	0	0
Future Volume (vph)	0	1534	0	0	1847	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		5002			3535							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		5002			3535							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1534	0	0	1847	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1534	0	0	1847	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	9		79	79		9	32		32	32		32
Heavy Vehicles (%)	0%	2%	0%	100%	1%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2405			2766							
v/s Ratio Prot		0.31			c0.52							
v/s Ratio Perm												
v/c Ratio		0.63			0.66							
Uniform Delay, d1		22.3			5.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.3			1.2							
Delay (s)		23.6			6.9							
Level of Service		C			A							
Approach Delay (s/veh)		23.6			6.9			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	107	416	114	93	674
Future Vol, veh/h	43	107	416	114	93	674
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	6	2	0	0	1
Mvmt Flow	43	107	416	114	93	674

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	999	268	0	0	533	0
Stage 1	476	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Critical Hdwy	6.8	7.02	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.36	-	-	2.2	-
Pot Cap-1 Maneuver	244	718	-	-	1045	-
Stage 1	597	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	716	-	-	1043	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.4	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	716	1043	-
HCM Lane V/C Ratio	-	-	0.206	0.149	0.089	-
HCM Control Delay (s/veh)	-	-	26.6	10.9	8.8	0.5
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q (veh)	-	-	0.8	0.5	0.3	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Future Vol, veh/h	97	81	29	0	41	43	14	6	0	20	9	95
Conflicting Peds, #/hr	14	0	0	0	0	14	15	0	1	1	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	15	0	0	0	0	0	0	0
Mvmt Flow	97	81	29	0	41	43	14	6	0	20	9	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	98	0	0	110	0	0	330	388	97	371	381	71
Stage 1	-	-	-	-	-	-	290	290	-	77	77	-
Stage 2	-	-	-	-	-	-	40	98	-	294	304	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1508	-	-	1493	-	-	616	550	965	577	555	983
Stage 1	-	-	-	-	-	-	722	676	-	929	835	-
Stage 2	-	-	-	-	-	-	976	818	-	719	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1492	-	-	1493	-	-	513	507	964	535	511	961
Mov Cap-2 Maneuver	-	-	-	-	-	-	513	507	-	535	511	-
Stage 1	-	-	-	-	-	-	672	629	-	856	826	-
Stage 2	-	-	-	-	-	-	860	809	-	662	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	3.6	0	12.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	511	1492	-	-	1493	-	-	535	893
HCM Lane V/C Ratio	0.039	0.065	-	-	-	-	-	0.037	0.116
HCM Control Delay (s/veh)	12.3	7.6	0	-	0	-	-	12	9.6
HCM Lane LOS	B	A	A	-	A	-	-	B	A
HCM 95th %tile Q (veh)	0.1	0.2	-	-	0	-	-	0.1	0.4

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Future Vol, veh/h	3	98	0	0	67	34	1	0	73	21	7	16
Conflicting Peds, #/hr	0	0	2	4	0	0	0	0	5	5	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	9	0	0	0	1	0	0	0
Mvmt Flow	3	98	0	0	67	34	1	0	73	21	7	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	102	0	0	204	209	107	230	192	84
Stage 1	-	-	-	-	-	-	108	108	-	84	84	-
Stage 2	-	-	-	-	-	-	96	101	-	146	108	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.21	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.309	3.5	4	3.3
Pot Cap-1 Maneuver	1504	-	-	1503	-	-	758	692	950	729	707	981
Stage 1	-	-	-	-	-	-	902	810	-	929	829	-
Stage 2	-	-	-	-	-	-	916	815	-	861	810	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1504	-	-	1498	-	-	737	689	943	669	703	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	689	-	669	703	-
Stage 1	-	-	-	-	-	-	897	806	-	927	829	-
Stage 2	-	-	-	-	-	-	893	815	-	790	806	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0	9.2	10
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	939	1504	-	-	1498	-	-	763
HCM Lane V/C Ratio	0.079	0.002	-	-	-	-	-	0.058
HCM Control Delay (s/veh)	9.2	7.4	0	-	0	-	-	10
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q (veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1054	1446	62	26	34
Future Vol, veh/h	27	1054	1446	62	26	34
Conflicting Peds, #/hr	13	0	0	13	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	2	1	0	8	0
Mvmt Flow	27	1054	1446	62	26	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1521	0	-	0	2074	767
Stage 1	-	-	-	-	1490	-
Stage 2	-	-	-	-	584	-
Critical Hdwy	4.1	-	-	-	6.96	6.9
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	2.2	-	-	-	3.58	3.3
Pot Cap-1 Maneuver	445	-	-	-	43	349
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	441	-	-	-	36	345
Mov Cap-2 Maneuver	-	-	-	-	36	-
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.3	0	110.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	441	-	-	-	36	345
HCM Lane V/C Ratio	0.061	-	-	-	0.722	0.099
HCM Control Delay (s/veh)	13.7	1	-	-	233.3	16.6
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.6	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1528	11	0	1805	124	0	0	43	0	0	45
Future Vol, veh/h	0	1528	11	0	1805	124	0	0	43	0	0	45
Conflicting Peds, #/hr	4	0	2	2	0	4	36	0	0	0	0	36
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	3	0	0	2	0	0	4
Mvmt Flow	0	1528	11	0	1805	124	0	0	43	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	772	-	-	1005
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.34
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	294	0	0	236
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	294	-	-	229
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	19.3	24.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	294	-	-	-	-	229
HCM Lane V/C Ratio	0.146	-	-	-	-	0.197
HCM Control Delay (s/veh)	19.3	-	-	-	-	24.5
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.5	-	-	-	-	0.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Future Vol, veh/h	0	0	0	0	0	1	0	73	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	1	0	73	0	0	0	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	78	77	4	77	80	73	7	0	0	73	0	0
Stage 1	4	4	-	73	73	-	-	-	-	-	-	-
Stage 2	74	73	-	4	7	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	916	817	1085	917	814	995	1627	-	-	1540	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	940	838	-	1024	894	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	817	1085	917	814	995	1627	-	-	1540	-	-
Mov Cap-2 Maneuver	915	817	-	917	814	-	-	-	-	-	-	-
Stage 1	1024	897	-	942	838	-	-	-	-	-	-	-
Stage 2	939	838	-	1024	894	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1627	-	-	-	995	1540	-	-
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	8.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Future Vol, veh/h	50	0	0	5	0	12	30	11	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	50	0	0	5	0	12	30	11	5	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	81	77	1	75	75	14	1	0	0	16	0	0
Stage 1	1	1	-	74	74	-	-	-	-	-	-	-
Stage 2	80	76	-	1	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	912	817	1090	920	819	1072	1635	-	-	1615	-	-
Stage 1	1027	899	-	940	837	-	-	-	-	-	-	-
Stage 2	934	836	-	1027	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	888	801	1090	907	803	1072	1635	-	-	1615	-	-
Mov Cap-2 Maneuver	888	801	-	907	803	-	-	-	-	-	-	-
Stage 1	1007	899	-	922	821	-	-	-	-	-	-	-
Stage 2	906	820	-	1027	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.3	8.6	4.7	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	888	1018	1615	-	-
HCM Lane V/C Ratio	0.018	-	-	0.056	0.017	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	9.3	8.6	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Future Vol, veh/h	0	0	37	4	0	11	37	35	5	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	37	4	0	11	37	35	5	0	5	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	122	119	5	136	117	38	5	0	0	40	0	0
Stage 1	5	5	-	112	112	-	-	-	-	-	-	-
Stage 2	117	114	-	24	5	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	858	775	1084	840	777	1040	1630	-	-	1583	-	-
Stage 1	1022	896	-	898	807	-	-	-	-	-	-	-
Stage 2	892	805	-	999	896	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	834	757	1084	797	759	1040	1630	-	-	1583	-	-
Mov Cap-2 Maneuver	834	757	-	797	759	-	-	-	-	-	-	-
Stage 1	998	896	-	877	788	-	-	-	-	-	-	-
Stage 2	862	786	-	965	896	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.4	8.8	3.5	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1630	-	-	1084	962	1583	-	-
HCM Lane V/C Ratio	0.023	-	-	0.034	0.016	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.4	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Future Vol, veh/h	0	0	11	1	0	0	11	77	1	0	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	11	1	0	0	11	77	1	0	46	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	146	146	46	152	146	78	46	0	0	78	0	0
Stage 1	46	46	-	100	100	-	-	-	-	-	-	-
Stage 2	100	100	-	52	46	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	827	749	1029	820	749	988	1575	-	-	1533	-	-
Stage 1	973	861	-	911	816	-	-	-	-	-	-	-
Stage 2	911	816	-	966	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	823	744	1029	807	744	988	1575	-	-	1533	-	-
Mov Cap-2 Maneuver	823	744	-	807	744	-	-	-	-	-	-	-
Stage 1	966	861	-	905	810	-	-	-	-	-	-	-
Stage 2	905	810	-	956	861	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.5	9.5	0.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1029	807	1533	-	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.001	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.5	9.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	1	101	119	0
Future Vol, veh/h	0	2	1	101	119	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-2	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	100	100	6	1	0
Mvmt Flow	0	2	1	101	119	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	222	119	119	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	771	724	1032	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	724	1032	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1032	-	724	-	-
HCM Lane V/C Ratio	0.001	-	0.003	-	-
HCM Control Delay (s/veh)	8.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

APPENDIX G

2031 & 2041 Future Total Intersection Capacity Analysis

2031 Future Total Intersection Capacity Analysis

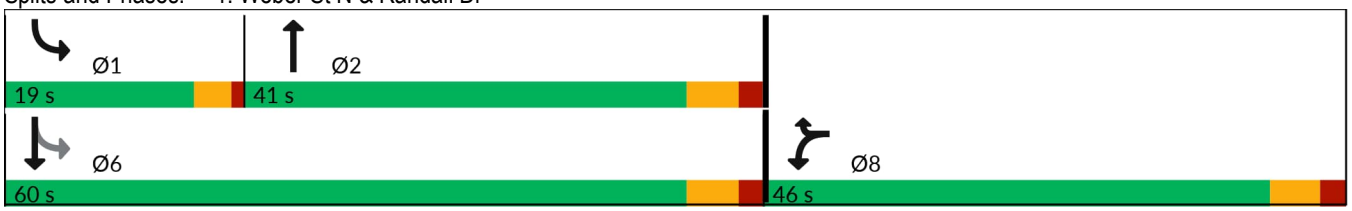
2031

Weekday AM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	72	24	519	45	399
Future Volume (vph)	72	24	519	45	399
Lane Group Flow (vph)	72	24	627	45	399
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.33	0.10	0.50	0.08	0.28
Control Delay (s/veh)	33.2	12.5	9.7	3.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	12.5	9.7	3.3	3.8
Queue Length 50th (m)	9.8	0.0	49.3	1.4	15.1
Queue Length 95th (m)	21.5	6.1	92.2	4.3	30.5
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	767	788	1245	631	1400
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.50	0.07	0.29

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randall Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	24	519	108	45	399
Future Volume (vph)	72	24	519	108	45	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1754		1607	1773
Flt Permitted	0.95	1.00	1.00		0.32	1.00
Satd. Flow (perm)	1394	1413	1754		541	1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	24	519	108	45	399
RTOR Reduction (vph)	0	21	4	0	0	0
Lane Group Flow (vph)	72	3	623	0	45	399
Confl. Peds. (#/hr)				6	6	
Heavy Vehicles (%)	28%	13%	4%	5%	11%	6%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	8.1	8.1	51.3		59.1	59.1
Effective Green, g (s)	10.1	10.1	53.3		59.1	61.1
Actuated g/C Ratio	0.13	0.13	0.67		0.75	0.77
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	180	1180		454	1367
v/s Ratio Prot	c0.05	0.00	c0.36		0.00	c0.23
v/s Ratio Perm					0.07	
v/c Ratio	0.40	0.01	0.52		0.09	0.29
Uniform Delay, d1	31.7	30.2	6.5		3.9	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.0	1.6		0.0	0.5
Delay (s)	33.3	30.2	8.2		4.0	3.2
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	32.5		8.2			3.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

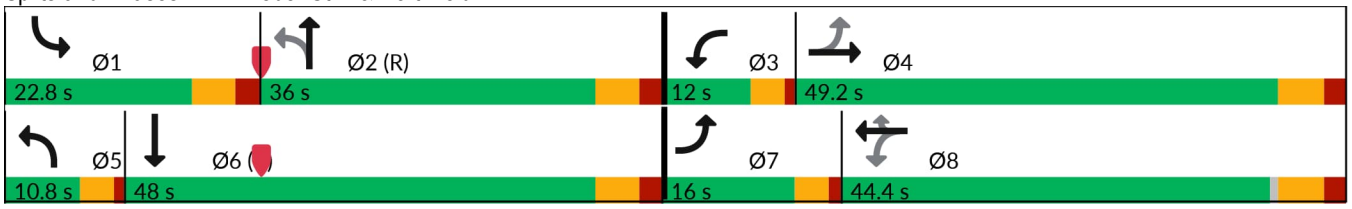
c Critical Lane Group

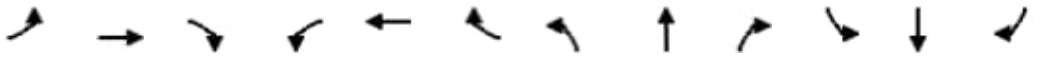
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	156	910	68	613	122	31	129	210	360
Future Volume (vph)	156	910	68	613	122	31	129	210	360
Lane Group Flow (vph)	156	994	68	613	122	31	228	210	415
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.5	44.4	9.0	44.4	44.4	9.5	36.0	13.0	36.0
Total Split (s)	16.0	49.2	12.0	44.4	44.4	10.8	36.0	22.8	48.0
Total Split (%)	13.3%	41.0%	10.0%	37.0%	37.0%	9.0%	30.0%	19.0%	40.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
v/c Ratio	0.46	0.81	0.39	0.53	0.21	0.09	0.26	0.43	0.35
Control Delay (s/veh)	23.0	39.8	24.7	33.7	2.8	20.0	20.1	49.0	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.0	39.8	24.7	33.7	2.8	20.0	20.1	49.0	27.5
Queue Length 50th (m)	21.7	114.6	9.0	64.0	0.0	4.2	12.9	24.5	37.4
Queue Length 95th (m)	35.7	142.6	17.6	82.6	7.5	10.1	23.9	37.1	51.3
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	334	1219	171	1147	572	316	857	480	1180
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.82	0.40	0.53	0.21	0.10	0.27	0.44	0.35

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15.6 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Pretimed

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	910	84	68	613	122	31	129	99	210	360	55
Future Volume (vph)	156	910	84	68	613	122	31	129	99	210	360	55
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3224		1555	3341	1371	1592	2941		3067	3191	
Flt Permitted	0.25	1.00		0.12	1.00	1.00	0.50	1.00		0.95	1.00	
Satd. Flow (perm)	443	3224		199	3341	1371	853	2941		3067	3191	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	910	84	68	613	122	31	129	99	210	360	55
RTOR Reduction (vph)	0	6	0	0	0	80	0	73	0	0	10	0
Lane Group Flow (vph)	156	988	0	68	613	42	31	155	0	210	405	0
Confl. Peds. (#/hr)	3		16	16		3	16		14	14		16
Heavy Vehicles (%)	0%	2%	1%	6%	6%	4%	3%	6%	3%	6%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	55.2	43.2		47.2	39.2	39.2	36.8	30.0		16.8	42.0	
Effective Green, g (s)	55.2	45.2		47.2	41.2	41.2	36.8	32.0		18.8	44.0	
Actuated g/C Ratio	0.46	0.38		0.39	0.34	0.34	0.31	0.27		0.16	0.37	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	326	1214		168	1147	470	303	784		480	1170	
v/s Ratio Prot	c0.05	c0.31		0.03	0.18		0.01	0.05		c0.07	c0.13	
v/s Ratio Perm	0.17			0.13		0.03	0.03					
v/c Ratio	0.47	0.81		0.40	0.53	0.08	0.10	0.19		0.43	0.34	
Uniform Delay, d1	20.8	33.6		25.5	31.6	26.6	29.4	34.0		45.8	27.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	6.0		7.0	1.7	0.3	0.6	0.5		2.8	0.8	
Delay (s)	25.8	39.6		32.6	33.4	27.0	30.0	34.6		48.6	28.3	
Level of Service	C	D		C	C	C	C	C		D	C	
Approach Delay (s/veh)		37.8			32.4			34.0			35.2	
Approach LOS		D			C			C			D	

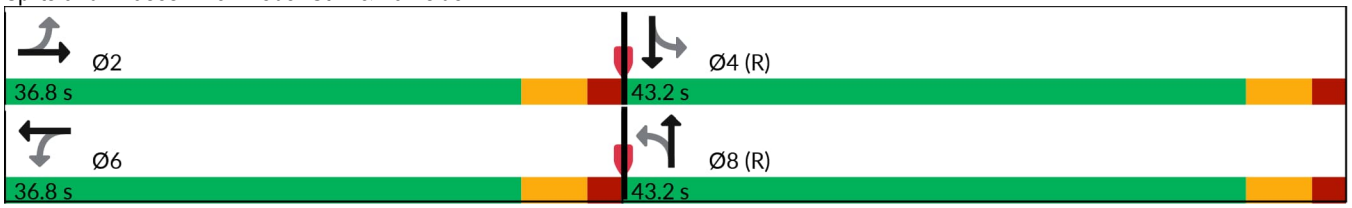
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

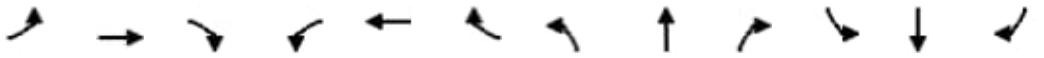
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	74	185	252	238	16	172	30	330
Future Volume (vph)	74	185	252	238	16	172	30	330
Lane Group Flow (vph)	74	234	252	251	16	254	30	482
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (%)	46.0%	46.0%	46.0%	46.0%	54.0%	54.0%	54.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.20	0.36	0.65	0.37	0.04	0.18	0.06	0.32
Control Delay (s/veh)	17.0	16.8	28.9	18.2	12.3	7.9	12.4	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.0	16.8	28.9	18.2	12.3	7.9	12.4	9.4
Queue Length 50th (m)	7.4	22.8	31.6	26.7	1.4	7.4	2.5	16.2
Queue Length 95th (m)	16.8	40.6	59.5	45.4	4.8	14.0	7.2	26.2
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	370	649	384	665	332	1380	451	1479
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.36	0.66	0.38	0.05	0.18	0.07	0.33

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42.7 (53%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	185	49	252	238	13	16	172	82	30	330	152
Future Volume (vph)	74	185	49	252	238	13	16	172	82	30	330	152
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1603	1554		1605	1618		1535	2730		1550	2883	
Flt Permitted	0.53	1.00		0.55	1.00		0.44	1.00		0.59	1.00	
Satd. Flow (perm)	905	1554		939	1618		715	2730		970	2883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	185	49	252	238	13	16	172	82	30	330	152
RTOR Reduction (vph)	0	12	0	0	2	0	0	42	0	0	67	0
Lane Group Flow (vph)	74	222	0	252	249	0	16	212	0	30	415	0
Confl. Peds. (#/hr)	1		13	13		1	3					3
Heavy Vehicles (%)	4%	1%	2%	2%	0%	0%	0%	7%	9%	0%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		37.2	37.2		37.2	37.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8		37.2	39.2		37.2	39.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.49		0.47	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	371	637		384	663		332	1337		451	1412	
v/s Ratio Prot		0.14			0.15			0.08			c0.14	
v/s Ratio Perm	0.08			c0.27			0.02			0.03		
v/c Ratio	0.19	0.34		0.65	0.37		0.04	0.15		0.06	0.29	
Uniform Delay, d1	15.1	16.2		19.0	16.4		11.7	11.2		11.8	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	1.5		8.4	1.6		0.2	0.2		0.2	0.5	
Delay (s)	16.3	17.7		27.5	18.0		11.9	11.5		12.0	12.6	
Level of Service	B	B		C	B		B	B		B	B	
Approach Delay (s/veh)		17.4			22.8			11.5			12.6	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

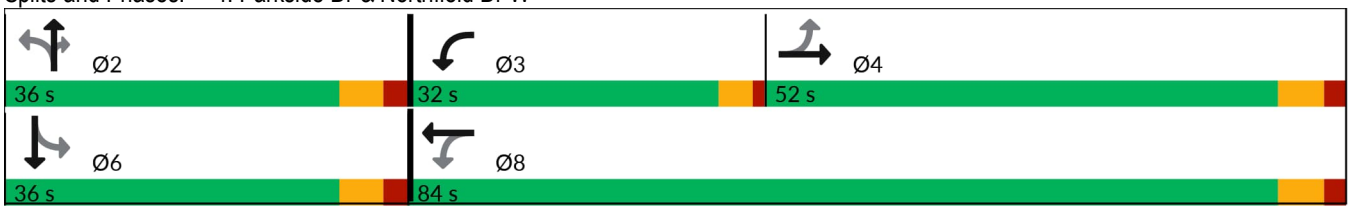
c Critical Lane Group

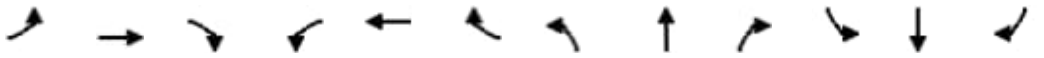
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	21	1183	393	789	16	37	215	94	233
Future Volume (vph)	21	1183	393	789	16	37	215	94	233
Lane Group Flow (vph)	21	1207	393	968	0	53	215	94	239
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	40.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	52.0	52.0	32.0	84.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	43.3%	43.3%	26.7%	70.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.10	0.95	0.92	0.47		0.14	0.39	0.27	0.54
Control Delay (s/veh)	24.2	51.1	61.6	10.1		34.9	6.9	37.3	42.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.2	51.1	61.6	10.1		34.9	6.9	37.3	42.4
Queue Length 50th (m)	3.2	151.2	77.7	52.8		10.1	0.0	18.5	50.9
Queue Length 95th (m)	9.2	#201.2	#136.3	66.7		21.1	19.0	34.2	78.1
Internal Link Dist (m)		123.1		82.8		475.0			37.0
Turn Bay Length (m)	35.0		25.0					26.0	
Base Capacity (vph)	211	1281	447	2107		372	539	340	442
Starvation Cap Reductn	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.10	0.94	0.88	0.46		0.14	0.40	0.28	0.54

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 117.8
Natural Cycle: 100
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1183	24	393	789	179	16	37	215	94	233	6
Future Volume (vph)	21	1183	24	393	789	179	16	37	215	94	233	6
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.98	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3137		1635	3077			1519	1408	1645	1625	
Flt Permitted	0.29	1.00		0.08	1.00			0.88	1.00	0.72	1.00	
Satd. Flow (perm)	518	3137		139	3077			1369	1408	1251	1625	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	1183	24	393	789	179	16	37	215	94	233	6
RTOR Reduction (vph)	0	1	0	0	17	0	0	0	157	0	1	0
Lane Group Flow (vph)	21	1206	0	393	951	0	0	53	58	94	238	0
Confl. Peds. (#/hr)	6		18	18		6	10		3	3		10
Heavy Vehicles (%)	0%	5%	8%	2%	5%	4%	0%	8%	2%	2%	1%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	45.5	45.5		75.8	75.8			30.0	30.0	30.0	30.0	
Effective Green, g (s)	47.5	47.5		75.8	77.8			32.0	32.0	32.0	32.0	
Actuated g/C Ratio	0.40	0.40		0.64	0.66			0.27	0.27	0.27	0.27	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	208	1264		423	2032			371	382	339	441	
v/s Ratio Prot		c0.38		c0.21	0.31						c0.15	
v/s Ratio Perm	0.04			0.39				0.04	0.04	0.08		
v/c Ratio	0.10	0.95		0.92	0.46			0.14	0.15	0.27	0.54	
Uniform Delay, d1	21.8	34.0		35.8	9.8			32.5	32.6	33.7	36.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	15.5		26.5	0.1			0.8	0.8	2.0	4.6	
Delay (s)	22.0	49.6		62.3	10.0			33.3	33.4	35.8	41.3	
Level of Service	C	D		E	B			C	C	D	D	
Approach Delay (s/veh)		49.1			25.1			33.4			39.7	
Approach LOS		D			C			C			D	

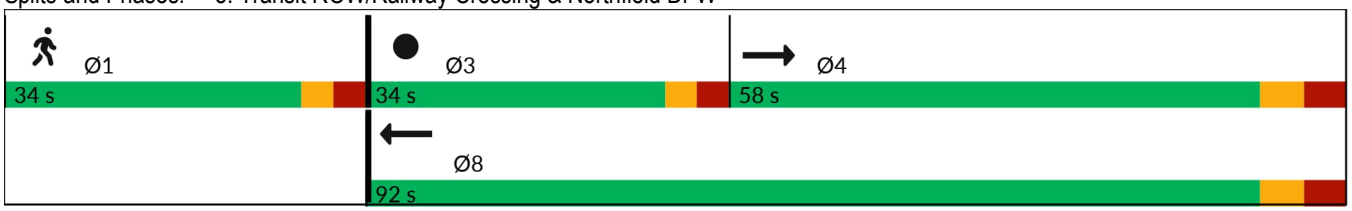
Intersection Summary			
HCM 2000 Control Delay (s/veh)	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

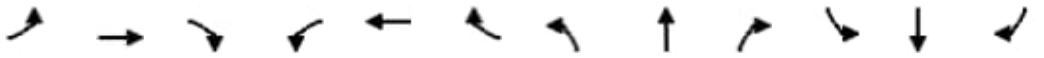
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1492	1361		
Future Volume (vph)	1492	1361		
Lane Group Flow (vph)	1492	1361		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.61	0.46		
Control Delay (s/veh)	25.0	7.0		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	25.0	7.0		
Queue Length 50th (m)	115.2	82.5		
Queue Length 95th (m)	133.4	98.7		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2924		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.62	0.47		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1492	0	0	1361	0	0	0	0	0	0	0
Future Volume (vph)	0	1492	0	0	1361	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1492	0	0	1361	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1492	0	0	1361	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	19		59	59		19	26		26	26		26
Heavy Vehicles (%)	0%	4%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2793							
v/s Ratio Prot		c0.30			c0.38							
v/s Ratio Perm												
v/c Ratio		0.63			0.48							
Uniform Delay, d1		22.2			4.3							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.3			0.6							
Delay (s)		23.5			5.0							
Level of Service		C			A							
Approach Delay (s/veh)		23.5			5.0			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

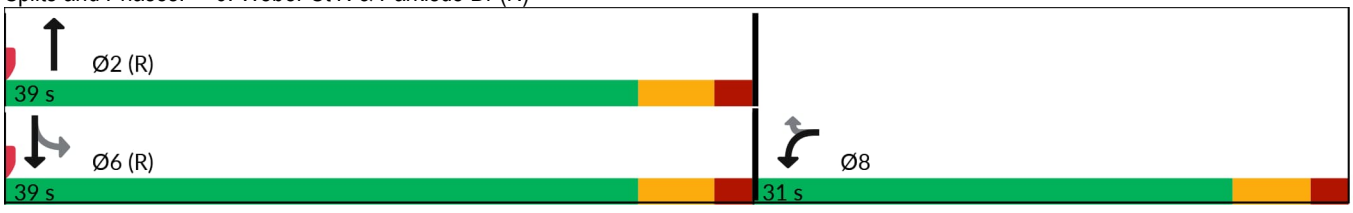
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	206	312	315	52	419
Future Volume (vph)	206	312	315	52	419
Lane Group Flow (vph)	206	312	408	52	419
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	30.0	30.0	30.0
Minimum Split (s)	31.0	31.0	36.0	36.0	36.0
Total Split (s)	31.0	31.0	39.0	39.0	39.0
Total Split (%)	44.3%	44.3%	55.7%	55.7%	55.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.53	0.54	0.19	0.09	0.20
Control Delay (s/veh)	28.1	6.6	4.7	6.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.1	6.6	4.7	6.2	5.7
Queue Length 50th (m)	25.1	0.0	7.7	2.2	10.1
Queue Length 95th (m)	39.4	16.3	17.0	7.7	20.6
Internal Link Dist (m)	67.8		212.4		232.9
Turn Bay Length (m)				33.0	
Base Capacity (vph)	643	742	2064	576	2082
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.42	0.20	0.09	0.20

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 6: Weber St N & Parkisde Dr (N)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	206	312	315	93	52	419
Future Volume (vph)	206	312	315	93	52	419
Ideal Flow (vphpl)	1775	1750	1775	1775	1775	1775
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1668	1428	3108		1631	3176
Flt Permitted	0.95	1.00	1.00		0.51	1.00
Satd. Flow (perm)	1668	1428	3108		880	3176
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	206	312	315	93	52	419
RTOR Reduction (vph)	0	240	27	0	0	0
Lane Group Flow (vph)	206	72	381	0	52	419
Confl. Peds. (#/hr)				2	2	
Heavy Vehicles (%)	0%	3%	4%	0%	2%	5%
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	14.1	14.1	43.9		43.9	43.9
Effective Green, g (s)	16.1	16.1	45.9		45.9	45.9
Actuated g/C Ratio	0.23	0.23	0.66		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	383	328	2037		577	2082
v/s Ratio Prot	c0.12		0.12			c0.13
v/s Ratio Perm		0.05			0.06	
v/c Ratio	0.53	0.21	0.18		0.09	0.20
Uniform Delay, d1	23.6	21.8	4.7		4.4	4.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	0.3	0.2		0.3	0.2
Delay (s)	25.1	22.1	4.9		4.7	4.9
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	23.3		4.9			4.9
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	35	4	0	414	48	0	5	0	45	14	104
Future Vol, veh/h	106	35	4	0	414	48	0	5	0	45	14	104
Conflicting Peds, #/hr	2	0	0	0	0	2	5	0	3	3	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	106	35	4	0	414	48	0	5	0	45	14	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	39	0	0	468	713	40	695	691	238
Stage 1	-	-	-	-	-	-	249	249	-	440	440	-
Stage 2	-	-	-	-	-	-	219	464	-	255	251	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1108	-	-	1584	-	-	496	360	1037	346	370	769
Stage 1	-	-	-	-	-	-	759	704	-	571	581	-
Stage 2	-	-	-	-	-	-	769	567	-	754	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1106	-	-	1584	-	-	382	324	1035	315	333	765
Mov Cap-2 Maneuver	-	-	-	-	-	-	382	324	-	315	333	-
Stage 1	-	-	-	-	-	-	685	635	-	514	580	-
Stage 2	-	-	-	-	-	-	646	566	-	673	634	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	6.3	0	16.3	13.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	324	1106	-	-	1584	-	-	315	663
HCM Lane V/C Ratio	0.015	0.096	-	-	-	-	-	0.143	0.178
HCM Control Delay (s/veh)	16.3	8.6	0	-	0	-	-	18.3	11.6
HCM Lane LOS	C	A	A	-	A	-	-	C	B
HCM 95th %tile Q (veh)	0	0.3	-	-	0	-	-	0.5	0.6

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	48	30	58	442	10	19	7	0	10	13	1
Future Vol, veh/h	2	48	30	58	442	10	19	7	0	10	13	1
Conflicting Peds, #/hr	3	0	3	3	0	3	5	0	2	2	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	2	48	30	58	442	10	19	7	0	10	13	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	455	0	0	81	0	0	645	641	68	639	651	455
Stage 1	-	-	-	-	-	-	70	70	-	566	566	-
Stage 2	-	-	-	-	-	-	575	571	-	73	85	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1116	-	-	1529	-	-	388	395	1001	392	390	609
Stage 1	-	-	-	-	-	-	945	841	-	513	511	-
Stage 2	-	-	-	-	-	-	507	508	-	942	828	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1113	-	-	1525	-	-	360	372	997	369	368	605
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	372	-	369	368	-
Stage 1	-	-	-	-	-	-	941	838	-	511	484	-
Stage 2	-	-	-	-	-	-	466	481	-	931	825	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0.8	15.7	15.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	1113	-	-	1525	-	-	375
HCM Lane V/C Ratio	0.072	0.002	-	-	0.038	-	-	0.064
HCM Control Delay (s/veh)	15.7	8.2	0	-	7.5	0	-	15.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q (veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1208	688	95	16	111
Future Vol, veh/h	3	1208	688	95	16	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	5	0	13	0
Mvmt Flow	3	1208	688	95	16	111

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	783	0	-	0	1346	392
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	610	-
Critical Hdwy	4.1	-	-	-	7.06	6.9
Critical Hdwy Stg 1	-	-	-	-	6.06	-
Critical Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	2.2	-	-	-	3.63	3.3
Pot Cap-1 Maneuver	844	-	-	-	129	613
Stage 1	-	-	-	-	407	-
Stage 2	-	-	-	-	476	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	844	-	-	-	128	613
Mov Cap-2 Maneuver	-	-	-	-	128	-
Stage 1	-	-	-	-	403	-
Stage 2	-	-	-	-	476	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.1	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	844	-	-	-	128	613
HCM Lane V/C Ratio	0.004	-	-	-	0.125	0.181
HCM Control Delay (s/veh)	9.3	0.1	-	-	37.1	12.2
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q (veh)	0	-	-	-	0.4	0.7

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1445	53	0	1334	219	0	0	17	0	0	33
Future Vol, veh/h	0	1445	53	0	1334	219	0	0	17	0	0	33
Conflicting Peds, #/hr	3	0	3	3	0	3	10	0	0	0	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	7	0	0	3	5	0	0	0	0	0	9
Mvmt Flow	0	1445	53	0	1334	219	0	0	17	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	752	-	-	790
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	306	0	0	318
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	305	-	-	315
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	17.5	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	305	-	-	-	-	315
HCM Lane V/C Ratio	0.056	-	-	-	-	0.105
HCM Control Delay (s/veh)	17.5	-	-	-	-	17.8
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	0	0	19	88	13
Future Vol, veh/h	7	0	0	19	88	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	0	0	19	88	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	114	95	101	0	-	0
Stage 1	95	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	887	967	1504	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	887	967	1504	-	-	-
Mov Cap-2 Maneuver	887	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1504	-	887	-	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s/veh)	0	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	22	19	88	0
Future Vol, veh/h	0	8	22	19	88	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	8	22	19	88	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	151	88	88	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	846	976	1520	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	833	976	1520	-	-	-
Mov Cap-2 Maneuver	833	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.7	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	976	-	-
HCM Lane V/C Ratio	0.014	-	0.008	-	-
HCM Control Delay (s/veh)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	11	41	96	0
Future Vol, veh/h	0	17	11	41	96	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	17	11	41	96	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	159	96	96	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	837	966	1510	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	831	966	1510	-	-	-
Mov Cap-2 Maneuver	831	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.8	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1510	-	966	-	-
HCM Lane V/C Ratio	0.007	-	0.018	-	-
HCM Control Delay (s/veh)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	41	0	19	8	33	57	30	83	0
Future Vol, veh/h	0	0	3	41	0	19	8	33	57	30	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	3	41	0	19	8	33	57	30	83	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	230	249	83	223	221	62	83	0	0	90	0	0
Stage 1	143	143	-	78	78	-	-	-	-	-	-	-
Stage 2	87	106	-	145	143	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	729	657	982	737	681	1009	1527	-	-	1518	-	-
Stage 1	865	782	-	936	834	-	-	-	-	-	-	-
Stage 2	926	811	-	863	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	701	639	982	719	663	1009	1527	-	-	1518	-	-
Mov Cap-2 Maneuver	701	639	-	719	663	-	-	-	-	-	-	-
Stage 1	860	766	-	930	829	-	-	-	-	-	-	-
Stage 2	903	806	-	842	766	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.7	9.9	0.6	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1527	-	-	982	791	1518	-	-
HCM Lane V/C Ratio	0.005	-	-	0.003	0.076	0.02	-	-
HCM Control Delay (s/veh)	7.4	0	-	8.7	9.9	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.1	-	-

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	57	2	0	0	513	3	11	0	4	0
Future Vol, veh/h	0	0	57	2	0	0	513	3	11	0	4	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	4	0	0	0	2	0	0	0	0	0
Mvmt Flow	0	0	57	2	0	0	513	3	11	0	4	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.4	13.9	7.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	97%	0%	100%	0%
Vol Thru, %	1%	0%	0%	100%
Vol Right, %	2%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	527	57	2	4
LT Vol	513	0	2	0
Through Vol	3	0	0	4
RT Vol	11	57	0	0
Lane Flow Rate	527	57	2	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.618	0.072	0.003	0.005
Departure Headway (Hd)	4.224	4.516	5.395	4.57
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	798	667	786
Service Time	2.268	2.516	3.401	2.582
HCM Lane V/C Ratio	0.617	0.071	0.003	0.005
HCM Control Delay, s/veh	13.9	7.9	8.4	7.6
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	4.4	0.2	0	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	8	0	0	11	527	17	0	63	0
Future Vol, veh/h	0	0	9	8	0	0	11	527	17	0	63	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	6	0
Mvmt Flow	0	0	9	8	0	0	11	527	17	0	63	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	621	629	63	626	621	536	63	0	0	544	0	0
Stage 1	63	63	-	558	558	-	-	-	-	-	-	-
Stage 2	558	566	-	68	63	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	403	402	1007	400	406	549	1553	-	-	1035	-	-
Stage 1	953	846	-	518	515	-	-	-	-	-	-	-
Stage 2	518	511	-	947	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	400	398	1007	394	402	549	1553	-	-	1035	-	-
Mov Cap-2 Maneuver	400	398	-	394	402	-	-	-	-	-	-	-
Stage 1	943	846	-	513	510	-	-	-	-	-	-	-
Stage 2	513	506	-	939	846	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	14.3	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	1007	394	1035	-	-
HCM Lane V/C Ratio	0.007	-	-	0.009	0.02	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.6	14.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	253	0	0	443	0	112	125	0	80	0
Future Vol, veh/h	0	0	253	0	0	443	0	112	125	0	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	5	0
Mvmt Flow	0	0	253	0	0	443	0	112	125	0	80	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	476	317	80	382	255	175	80	0	0	237	0	0
Stage 1	80	80	-	175	175	-	-	-	-	-	-	-
Stage 2	396	237	-	207	80	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	503	602	986	580	652	874	1531	-	-	1342	-	-
Stage 1	934	832	-	832	758	-	-	-	-	-	-	-
Stage 2	633	713	-	800	832	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	248	602	986	431	652	874	1531	-	-	1342	-	-
Mov Cap-2 Maneuver	248	602	-	431	652	-	-	-	-	-	-	-
Stage 1	934	832	-	832	758	-	-	-	-	-	-	-
Stage 2	312	713	-	595	832	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.9	13.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	986	874	1342	-	-
HCM Lane V/C Ratio	-	-	-	0.257	0.507	-	-	-
HCM Control Delay (s/veh)	0	-	-	9.9	13.3	0	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q (veh)	0	-	-	1	2.9	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	56	1	0	509	4	1	0	0	1	0	0
Future Vol, veh/h	1	56	1	0	509	4	1	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	56	1	0	509	4	1	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	513	0	0	57	0	0	570	572	57	570	570	511
Stage 1	-	-	-	-	-	-	59	59	-	511	511	-
Stage 2	-	-	-	-	-	-	511	513	-	59	59	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1063	-	-	1560	-	-	435	433	1015	435	434	567
Stage 1	-	-	-	-	-	-	958	850	-	549	540	-
Stage 2	-	-	-	-	-	-	549	539	-	958	850	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1063	-	-	1560	-	-	435	433	1015	435	434	567
Mov Cap-2 Maneuver	-	-	-	-	-	-	435	433	-	435	434	-
Stage 1	-	-	-	-	-	-	957	849	-	548	540	-
Stage 2	-	-	-	-	-	-	549	539	-	957	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.1	0	13.3	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	435	1063	-	-	1560	-	-	435
HCM Lane V/C Ratio	0.002	0.001	-	-	-	-	-	0.002
HCM Control Delay (s/veh)	13.3	8.4	0	-	0	-	-	13.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Future Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	3	0	0	1	0	2	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	4	5	1	5	4	1	1	0	0	2	0	0
Stage 1	1	1	-	3	3	-	-	-	-	-	-	-
Stage 2	3	4	-	2	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1022	894	1090	1021	896	1090	1635	-	-	1634	-	-
Stage 1	1027	899	-	1025	897	-	-	-	-	-	-	-
Stage 2	1025	897	-	1026	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1021	893	1090	1019	895	1090	1635	-	-	1634	-	-
Mov Cap-2 Maneuver	1021	893	-	1019	895	-	-	-	-	-	-	-
Stage 1	1026	899	-	1024	896	-	-	-	-	-	-	-
Stage 2	1024	896	-	1025	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.5	2.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	1019	1634	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	0	0	0	0	2
Future Vol, veh/h	11	0	0	0	0	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	0	0	0	0	2
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.2	0	6.3
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	100%	0%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	11	2
LT Vol	0	11	0
Through Vol	0	0	0
RT Vol	0	0	2
Lane Flow Rate	0	11	2
Geometry Grp	1	1	1
Degree of Util (X)	0	0.013	0.002
Departure Headway (Hd)	3.921	4.104	3.32
Convergence, Y/N	Yes	Yes	Yes
Cap	0	877	1083
Service Time	1.927	2.104	1.325
HCM Lane V/C Ratio	0	0.013	0.002
HCM Control Delay, s/veh	6.9	7.2	6.3
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0	0

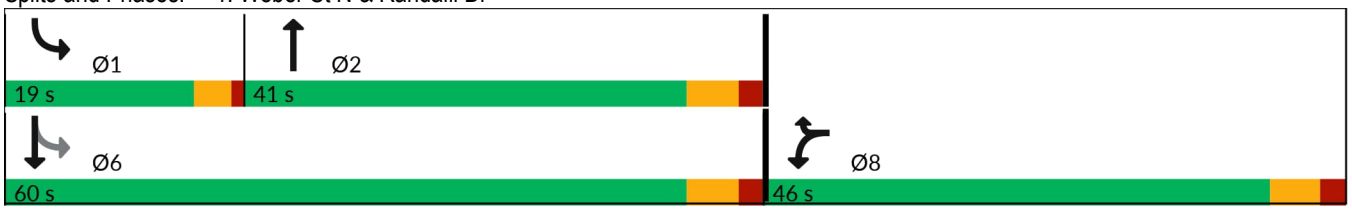
Weekday PM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	136	560	28	511
Future Volume (vph)	295	136	560	28	511
Lane Group Flow (vph)	295	136	632	28	511
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	8.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.73	0.27	0.67	0.07	0.46
Control Delay (s/veh)	40.3	6.9	23.7	9.1	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.3	6.9	23.7	9.1	12.0
Queue Length 50th (m)	48.2	1.7	69.4	1.8	44.4
Queue Length 95th (m)	76.8	14.2	#190.8	6.6	91.9
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	651	726	932	474	1105
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.19	0.68	0.06	0.46

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 90.4
Natural Cycle: 75
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Weber St N & Randalll Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	295	136	560	72	28	511
Future Volume (vph)	295	136	560	72	28	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	8.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1742		1607	1773
Flt Permitted	0.95	1.00	1.00		0.26	1.00
Satd. Flow (perm)	1394	1413	1742		452	1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	295	136	560	72	28	511
RTOR Reduction (vph)	0	89	3	0	0	0
Lane Group Flow (vph)	295	47	629	0	28	511
Confl. Peds. (#/hr)				5	5	
Heavy Vehicles (%)	28%	13%	6%	5%	11%	6%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.0	24.0	50.3		56.9	56.9
Effective Green, g (s)	26.0	26.0	48.3		56.9	58.9
Actuated g/C Ratio	0.28	0.28	0.52		0.61	0.63
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	390	395	905		309	1124
v/s Ratio Prot	c0.21	0.03	c0.36		0.00	c0.29
v/s Ratio Perm					0.05	
v/c Ratio	0.75	0.12	0.69		0.09	0.45
Uniform Delay, d1	30.5	24.9	16.7		9.3	8.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.1	0.1	4.3		0.1	1.3
Delay (s)	38.6	25.0	21.1		9.4	10.0
Level of Service	D	C	C		A	B
Approach Delay (s/veh)	34.3		21.1			10.0
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	92.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

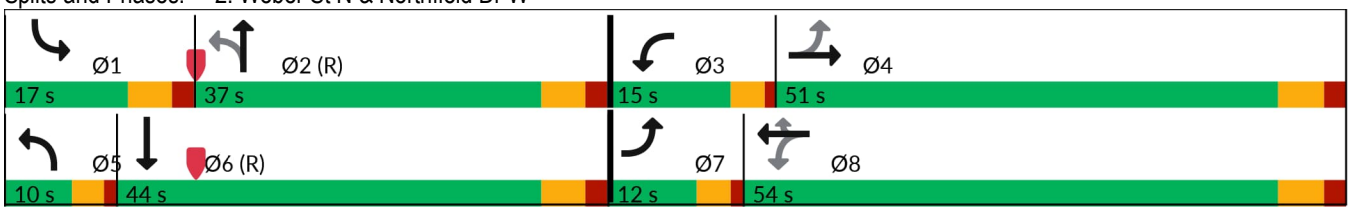
c Critical Lane Group

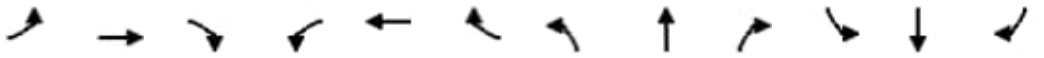
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	152	769	133	1196	154	64	329	324	354
Future Volume (vph)	152	769	133	1196	154	64	329	324	354
Lane Group Flow (vph)	152	838	133	1196	154	64	401	324	508
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.0	44.4	9.0	44.4	44.4	9.0	33.6	13.0	33.6
Total Split (s)	12.0	51.0	15.0	54.0	54.0	10.0	37.0	17.0	44.0
Total Split (%)	10.0%	42.5%	12.5%	45.0%	45.0%	8.3%	30.8%	14.2%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	8.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
v/c Ratio	0.88	0.66	0.50	0.86	0.25	0.23	0.46	0.97	0.48
Control Delay (s/veh)	69.4	32.6	22.4	40.0	4.7	24.1	36.3	97.2	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.4	32.6	22.4	40.0	4.7	24.1	36.3	97.2	29.5
Queue Length 50th (m)	21.2	87.6	16.8	140.2	0.0	9.5	41.2	41.9	45.9
Queue Length 95th (m)	#62.1	110.6	28.6	172.3	13.5	18.8	57.2	#72.0	62.9
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	172	1268	262	1379	615	272	857	332	1053
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.66	0.51	0.87	0.25	0.24	0.47	0.98	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	769	69	133	1196	154	64	329	72	324	354	154
Future Volume (vph)	152	769	69	133	1196	154	64	329	72	324	354	154
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	8.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3224		1555	3310	1355	1591	3061		3067	3037	
Flt Permitted	0.08	1.00		0.17	1.00	1.00	0.42	1.00		0.95	1.00	
Satd. Flow (perm)	156	3224		290	3310	1355	704	3061		3067	3037	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	152	769	69	133	1196	154	64	329	72	324	354	154
RTOR Reduction (vph)	0	5	0	0	0	95	0	15	0	0	41	0
Lane Group Flow (vph)	152	833	0	133	1196	59	64	386	0	324	467	0
Confl. Peds. (#/hr)	16		18	18		16	26		13	13		26
Heavy Vehicles (%)	0%	2%	1%	6%	7%	4%	3%	6%	3%	6%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	53.0	45.0		59.0	48.0	48.0	37.0	31.0		11.0	38.0	
Effective Green, g (s)	53.0	47.0		59.0	50.0	46.0	37.0	33.0		13.0	40.0	
Actuated g/C Ratio	0.44	0.39		0.49	0.42	0.38	0.31	0.28		0.11	0.33	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	169	1262		258	1379	519	261	841		332	1012	
v/s Ratio Prot	c0.06	0.26		c0.05	c0.36		0.01	0.13		c0.11	c0.15	
v/s Ratio Perm	0.34			0.21		0.04	0.06					
v/c Ratio	0.89	0.65		0.51	0.86	0.11	0.24	0.45		0.97	0.46	
Uniform Delay, d1	26.2	29.9		19.7	31.9	23.8	29.9	36.0		53.3	31.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.8	2.7		7.1	7.5	0.4	2.2	1.8		43.6	1.5	
Delay (s)	73.0	32.6		26.9	39.5	24.3	32.1	37.8		97.0	33.0	
Level of Service	E	C		C	D	C	C	D		F	C	
Approach Delay (s/veh)		38.8			36.8			37.1			57.9	
Approach LOS		D			D			D			E	

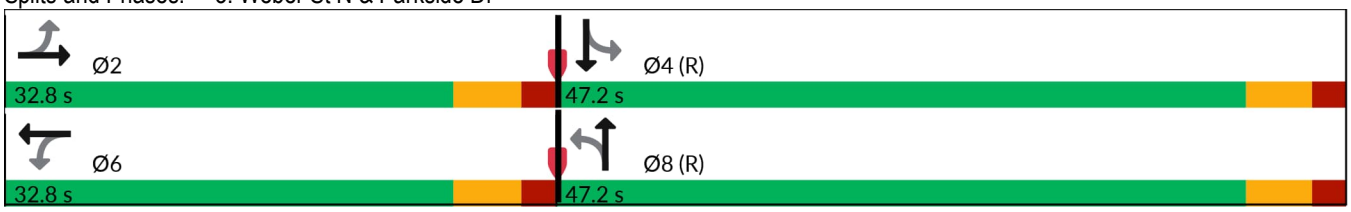
Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

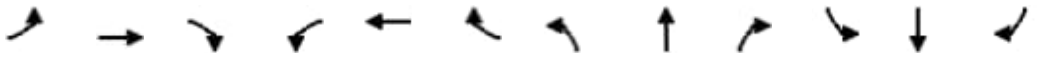
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	105	274	128	388	67	335	35	414
Future Volume (vph)	105	274	128	388	67	335	35	414
Lane Group Flow (vph)	105	323	128	413	67	495	35	521
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (%)	41.0%	41.0%	41.0%	41.0%	59.0%	59.0%	59.0%	59.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.54	0.56	0.52	0.70	0.18	0.31	0.09	0.32
Control Delay (s/veh)	32.8	24.3	29.5	29.6	12.1	7.3	10.8	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.8	24.3	29.5	29.6	12.1	7.3	10.8	9.5
Queue Length 50th (m)	13.1	39.1	15.8	55.0	5.4	14.0	2.7	19.5
Queue Length 95th (m)	#31.5	65.2	34.4	88.4	12.9	22.9	7.5	29.4
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	194	573	245	584	356	1553	373	1613
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.56	0.52	0.71	0.19	0.32	0.09	0.32

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2.4 (3%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	274	49	128	388	25	67	335	160	35	414	107
Future Volume (vph)	105	274	49	128	388	25	67	335	160	35	414	107
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	1569		1526	1615		1531	2743		1549	2934	
Flt Permitted	0.31	1.00		0.42	1.00		0.43	1.00		0.44	1.00	
Satd. Flow (perm)	539	1569		681	1615		693	2743		726	2934	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	274	49	128	388	25	67	335	160	35	414	107
RTOR Reduction (vph)	0	8	0	0	3	0	0	71	0	0	29	0
Lane Group Flow (vph)	105	315	0	128	410	0	67	424	0	35	492	0
Confl. Peds. (#/hr)	6		20	20		6	9		3	3		9
Heavy Vehicles (%)	3%	1%	2%	7%	0%	0%	0%	6%	8%	0%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.8	26.8		26.8	26.8		41.2	41.2		41.2	41.2	
Effective Green, g (s)	28.8	28.8		28.8	28.8		41.2	43.2		41.2	43.2	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.52	0.54		0.52	0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	194	564		245	581		356	1481		373	1584	
v/s Ratio Prot		0.20			c0.25			0.15			c0.17	
v/s Ratio Perm	0.19			0.19			0.10			0.05		
v/c Ratio	0.54	0.55		0.52	0.70		0.18	0.28		0.09	0.31	
Uniform Delay, d1	20.3	20.5		20.1	21.9		10.4	10.0		9.8	10.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.4	3.9		7.7	7.0		1.1	0.4		0.4	0.5	
Delay (s)	30.7	24.4		27.9	29.0		11.5	10.4		10.3	10.6	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s/veh)		26.0			28.7			10.6			10.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	1044	288	1559	32	113	396	190	173
Future Volume (vph)	90	1044	288	1559	32	113	396	190	173
Lane Group Flow (vph)	90	1074	288	1906	0	145	396	190	190
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	10.0	65.0	19.0	74.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	8.3%	54.2%	15.8%	61.7%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes			Yes					
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.62	0.66	0.85	1.05		0.38	0.74	0.70	0.44
Control Delay (s/veh)	37.4	24.0	39.3	61.1		39.5	26.4	55.6	39.8
Queue Delay	0.0	0.0	0.0	20.2		0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	24.0	39.3	81.4		39.5	26.4	55.6	39.8
Queue Length 50th (m)	7.2	101.1	30.4	~269.4		29.4	39.9	42.6	38.5
Queue Length 95th (m)	#28.7	125.6	#77.2	#314.4		49.5	80.9	#76.4	61.9
Internal Link Dist (m)		123.1		82.8		475.0			37.0
Turn Bay Length (m)	35.0		25.0					26.0	
Base Capacity (vph)	144	1617	347	1813		378	535	269	424
Starvation Cap Reductn	0	0	0	146		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.63	0.66	0.83	1.14		0.38	0.74	0.71	0.45

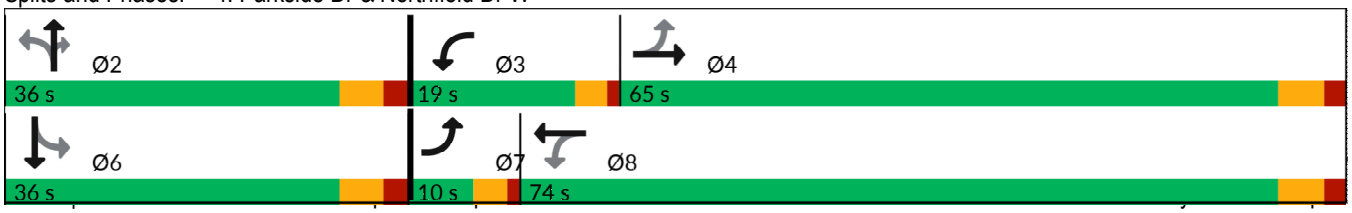
Intersection Summary

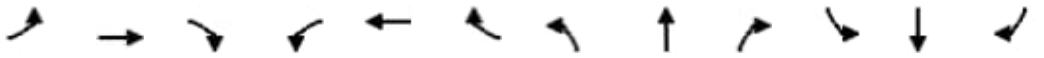
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 110
Control Type: Semi Act-Uncoord

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1044	30	288	1559	347	32	113	396	190	173	17
Future Volume (vph)	90	1044	30	288	1559	347	32	113	396	190	173	17
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.99	1.00	0.98	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1668	3130		1634	3081			1553	1394	1633	1581	
Flt Permitted	0.06	1.00		0.15	1.00			0.90	1.00	0.58	1.00	
Satd. Flow (perm)	117	3130		267	3081			1418	1394	1010	1581	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	1044	30	288	1559	347	32	113	396	190	173	17
RTOR Reduction (vph)	0	1	0	0	16	0	0	0	164	0	3	0
Lane Group Flow (vph)	90	1073	0	288	1890	0	0	145	232	190	187	0
Confl. Peds. (#/hr)	9		25	25		9	2		11	11		2
Heavy Vehicles (%)	0%	5%	8%	2%	5%	3%	0%	5%	2%	2%	3%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	2	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	65.9	59.9		78.0	68.0			30.0	30.0	30.0	30.0	
Effective Green, g (s)	65.9	61.9		78.0	70.0			32.0	32.0	32.0	32.0	
Actuated g/C Ratio	0.55	0.52		0.65	0.58			0.27	0.27	0.27	0.27	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	1614		334	1797			378	371	269	421	
v/s Ratio Prot	0.03	0.34		c0.10	c0.61						0.12	
v/s Ratio Perm	0.32			0.46				0.10	0.17	c0.19		
v/c Ratio	0.63	0.66		0.86	1.05			0.38	0.62	0.70	0.44	
Uniform Delay, d1	25.0	21.4		18.6	24.9			35.9	38.7	39.7	36.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.1	1.0		19.8	36.3			2.9	7.7	14.5	3.3	
Delay (s)	34.2	22.4		38.5	61.3			38.8	46.5	54.2	39.9	
Level of Service	C	C		D	E			D	D	D	D	
Approach Delay (s/veh)		23.3			58.3			44.4			47.1	
Approach LOS		C			E			D			D	

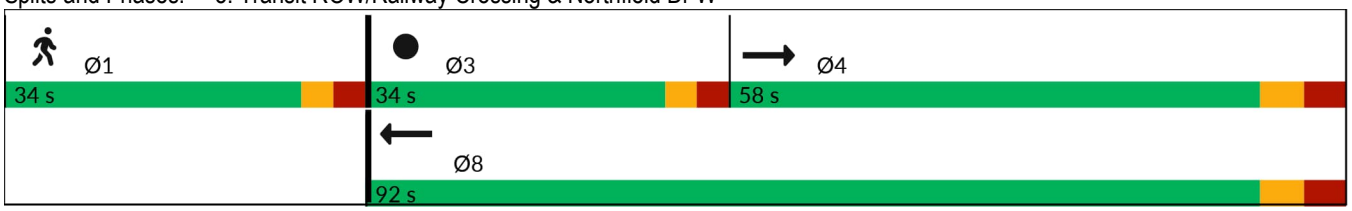
Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		

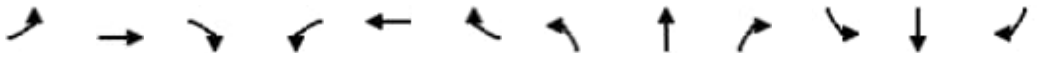
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1630	2194		
Future Volume (vph)	1630	2194		
Lane Group Flow (vph)	1630	2194		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.67	0.75		
Control Delay (s/veh)	26.3	12.7		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	26.4	12.7		
Queue Length 50th (m)	131.2	213.1		
Queue Length 95th (m)	151.0	256.0		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2924		
Starvation Cap Reductn	86	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.70	0.75		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1630	0	0	2194	0	0	0	0	0	0	0
Future Volume (vph)	0	1630	0	0	2194	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1630	0	0	2194	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1630	0	0	2194	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	9		79	79		9	32		32	32		32
Heavy Vehicles (%)	0%	4%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2793							
v/s Ratio Prot		0.33			c0.61							
v/s Ratio Perm												
v/c Ratio		0.69			0.78							
Uniform Delay, d1		23.2			7.0							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.6			2.3							
Delay (s)		24.8			9.3							
Level of Service		C			A							
Approach Delay (s/veh)		24.8			9.3			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

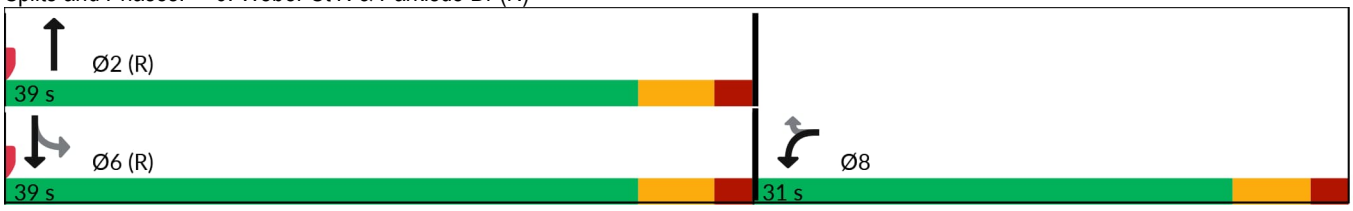
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	142	219	412	114	692
Future Volume (vph)	142	219	412	114	692
Lane Group Flow (vph)	142	219	635	114	692
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	30.0	30.0	30.0
Minimum Split (s)	31.0	31.0	36.0	36.0	36.0
Total Split (s)	31.0	31.0	39.0	39.0	39.0
Total Split (%)	44.3%	44.3%	55.7%	55.7%	55.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.43	0.49	0.29	0.23	0.31
Control Delay (s/veh)	28.5	7.7	3.3	6.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.5	7.7	3.3	6.3	5.1
Queue Length 50th (m)	17.5	0.0	8.9	4.7	15.8
Queue Length 95th (m)	30.9	15.5	18.5	13.9	29.3
Internal Link Dist (m)	67.8		212.4		232.9
Turn Bay Length (m)				33.0	
Base Capacity (vph)	643	664	2174	478	2197
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.33	0.29	0.24	0.31

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 6: Weber St N & Parkisde Dr (N)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	219	412	223	114	692
Future Volume (vph)	142	219	412	223	114	692
Ideal Flow (vphpl)	1775	1750	1775	1775	1775	1775
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1668	1375	3052		1631	3176
Flt Permitted	0.95	1.00	1.00		0.40	1.00
Satd. Flow (perm)	1668	1375	3052		692	3176
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	219	412	223	114	692
RTOR Reduction (vph)	0	176	64	0	0	0
Lane Group Flow (vph)	142	43	571	0	114	692
Confl. Peds. (#/hr)				3	3	
Heavy Vehicles (%)	0%	7%	4%	0%	2%	5%
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	11.6	11.6	46.4		46.4	46.4
Effective Green, g (s)	13.6	13.6	48.4		48.4	48.4
Actuated g/C Ratio	0.19	0.19	0.69		0.69	0.69
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	324	267	2110		478	2195
v/s Ratio Prot	c0.09		0.19			c0.22
v/s Ratio Perm		0.03			0.16	
v/c Ratio	0.43	0.15	0.27		0.23	0.31
Uniform Delay, d1	24.8	23.4	4.0		3.9	4.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.2	0.3		1.1	0.3
Delay (s)	25.7	23.7	4.4		5.1	4.6
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	24.5		4.4			4.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	211	29	0	252	43	14	6	0	20	9	95
Future Vol, veh/h	97	211	29	0	252	43	14	6	0	20	9	95
Conflicting Peds, #/hr	14	0	0	0	0	14	15	0	1	1	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	13	0	0	16	0	0	0	0	0	0	0
Mvmt Flow	97	211	29	0	252	43	14	6	0	20	9	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	240	0	0	566	729	227	712	722	177
Stage 1	-	-	-	-	-	-	420	420	-	288	288	-
Stage 2	-	-	-	-	-	-	146	309	-	424	434	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1263	-	-	1339	-	-	424	352	817	336	355	842
Stage 1	-	-	-	-	-	-	615	593	-	701	677	-
Stage 2	-	-	-	-	-	-	848	663	-	612	585	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1249	-	-	1339	-	-	338	317	816	305	320	823
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	317	-	305	320	-
Stage 1	-	-	-	-	-	-	560	540	-	631	670	-
Stage 2	-	-	-	-	-	-	731	656	-	550	532	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	2.3	0	16.6	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	331	1249	-	-	1339	-	-	305	724
HCM Lane V/C Ratio	0.06	0.078	-	-	-	-	-	0.066	0.144
HCM Control Delay (s/veh)	16.6	8.1	0	-	0	-	-	17.6	10.8
HCM Lane LOS	C	A	A	-	A	-	-	C	B
HCM 95th %tile Q (veh)	0.2	0.3	-	-	0	-	-	0.2	0.5

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	112	116	30	279	34	0	0	50	21	7	16
Future Vol, veh/h	3	112	116	30	279	34	0	0	50	21	7	16
Conflicting Peds, #/hr	0	0	2	4	0	0	0	0	5	5	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	112	116	30	279	34	0	0	50	21	7	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	313	0	0	232	0	0	548	553	179	562	594	296
Stage 1	-	-	-	-	-	-	180	180	-	356	356	-
Stage 2	-	-	-	-	-	-	368	373	-	206	238	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1259	-	-	1348	-	-	450	444	869	441	421	748
Stage 1	-	-	-	-	-	-	826	754	-	666	633	-
Stage 2	-	-	-	-	-	-	656	622	-	801	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1259	-	-	1344	-	-	423	429	863	404	407	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	423	429	-	404	407	-
Stage 1	-	-	-	-	-	-	821	749	-	664	616	-
Stage 2	-	-	-	-	-	-	618	605	-	749	708	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.1	0.7	9.4	13.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	863	1259	-	-	1344	-	-	486
HCM Lane V/C Ratio	0.058	0.002	-	-	0.022	-	-	0.091
HCM Control Delay (s/veh)	9.4	7.9	0	-	7.7	0	-	13.1
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q (veh)	0.2	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	1138	1392	209	22	85
Future Vol, veh/h	23	1138	1392	209	22	85
Conflicting Peds, #/hr	13	0	0	13	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	5	0	12	0
Mvmt Flow	23	1138	1392	209	22	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1614	0	-	0	2128	814
Stage 1	-	-	-	-	1510	-
Stage 2	-	-	-	-	618	-
Critical Hdwy	4.1	-	-	-	7.04	6.9
Critical Hdwy Stg 1	-	-	-	-	6.04	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.2	-	-	-	3.62	3.3
Pot Cap-1 Maneuver	410	-	-	-	38	325
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	406	-	-	-	32	322
Mov Cap-2 Maneuver	-	-	-	-	32	-
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.4	0	66.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	406	-	-	-	32	322
HCM Lane V/C Ratio	0.057	-	-	-	0.688	0.264
HCM Control Delay (s/veh)	14.4	1.1	-	-	246.6	20.1
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.3	1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1624	11	0	2152	124	0	0	43	0	0	45
Future Vol, veh/h	0	1624	11	0	2152	124	0	0	43	0	0	45
Conflicting Peds, #/hr	4	0	2	2	0	4	36	0	0	0	0	36
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	6	0	0	3	5	0	0	0	0	0	9
Mvmt Flow	0	1624	11	0	2152	124	0	0	43	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	820	-	-	1178
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	276	0	0	173
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	276	-	-	168
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	20.4	34.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	276	-	-	-	-	168
HCM Lane V/C Ratio	0.156	-	-	-	-	0.268
HCM Control Delay (s/veh)	20.4	-	-	-	-	34.1
HCM Lane LOS	C	-	-	-	-	D
HCM 95th %tile Q (veh)	0.5	-	-	-	-	1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	50	146	7
Future Vol, veh/h	0	0	0	50	146	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	50	146	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	200	150	153	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	793	902	1440	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	793	902	1440	-	-	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	978	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1440	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	0	30	0	146	0
Future Vol, veh/h	50	0	30	0	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	50	0	30	0	146	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	206	146	146	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	787	906	1448	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	906	1448	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10	7.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1448	-	770	-	-
HCM Lane V/C Ratio	0.021	-	0.065	-	-
HCM Control Delay (s/veh)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	37	30	146	0
Future Vol, veh/h	0	37	37	30	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	37	37	30	146	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	250	146	146	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	743	906	1448	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	724	906	1448	-	-	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.1	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1448	-	906	-	-
HCM Lane V/C Ratio	0.026	-	0.041	-	-
HCM Control Delay (s/veh)	7.6	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	27	0	0	11	67	154	116	67	0
Future Vol, veh/h	0	0	11	27	0	0	11	67	154	116	67	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	11	27	0	0	11	67	154	116	67	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	465	542	67	471	465	144	67	0	0	221	0	0
Stage 1	299	299	-	166	166	-	-	-	-	-	-	-
Stage 2	166	243	-	305	299	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	511	450	1002	506	498	909	1547	-	-	1360	-	-
Stage 1	714	670	-	841	765	-	-	-	-	-	-	-
Stage 2	841	708	-	709	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	473	407	1002	463	450	909	1547	-	-	1360	-	-
Mov Cap-2 Maneuver	473	407	-	463	450	-	-	-	-	-	-	-
Stage 1	708	610	-	834	759	-	-	-	-	-	-	-
Stage 2	834	702	-	639	610	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	13.3	0.3	5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1547	-	-	1002	463	1360	-	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.058	0.085	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.6	13.3	7.9	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	126	10	2	0	336	3	3	0	4	0
Future Vol, veh/h	0	2	126	10	2	0	336	3	3	0	4	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	4	0	0	0	4	0	0	0	0	0
Mvmt Flow	0	2	126	10	2	0	336	3	3	0	4	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.1	10.7	7.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	98%	0%	83%	0%
Vol Thru, %	1%	2%	17%	100%
Vol Right, %	1%	98%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	342	128	12	4
LT Vol	336	0	10	0
Through Vol	3	2	2	4
RT Vol	3	126	0	0
Lane Flow Rate	342	128	12	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.419	0.148	0.017	0.005
Departure Headway (Hd)	4.407	4.151	5.039	4.58
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	807	869	713	782
Service Time	2.486	2.152	3.049	2.602
HCM Lane V/C Ratio	0.424	0.147	0.017	0.005
HCM Control Delay, s/veh	10.7	7.9	8.1	7.6
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.1	0.5	0.1	0

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	25	37	0	3	26	339	34	3	137	0
Future Vol, veh/h	0	0	25	37	0	3	26	339	34	3	137	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	6	0
Mvmt Flow	0	0	25	37	0	3	26	339	34	3	137	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	553	568	137	564	551	356	137	0	0	373	0	0
Stage 1	143	143	-	408	408	-	-	-	-	-	-	-
Stage 2	410	425	-	156	143	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	447	435	917	439	445	693	1459	-	-	1197	-	-
Stage 1	865	782	-	624	600	-	-	-	-	-	-	-
Stage 2	623	590	-	851	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	436	424	917	418	433	693	1459	-	-	1197	-	-
Mov Cap-2 Maneuver	436	424	-	418	433	-	-	-	-	-	-	-
Stage 1	845	780	-	610	586	-	-	-	-	-	-	-
Stage 2	606	576	-	825	780	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9	14.2	0.5	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	917	431	1197	-	-
HCM Lane V/C Ratio	0.018	-	-	0.027	0.093	0.003	-	-
HCM Control Delay (s/veh)	7.5	0	-	9	14.2	8	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	181	0	0	231	0	168	382	0	199	0
Future Vol, veh/h	0	0	181	0	0	231	0	168	382	0	199	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	4	0
Mvmt Flow	0	0	181	0	0	231	0	168	382	0	199	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	674	749	199	649	558	359	199	0	0	550	0	0
Stage 1	199	199	-	359	359	-	-	-	-	-	-	-
Stage 2	475	550	-	290	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	371	343	847	386	441	690	1385	-	-	1030	-	-
Stage 1	807	740	-	663	631	-	-	-	-	-	-	-
Stage 2	574	519	-	722	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	247	343	847	303	441	690	1385	-	-	1030	-	-
Mov Cap-2 Maneuver	247	343	-	303	441	-	-	-	-	-	-	-
Stage 1	807	740	-	663	631	-	-	-	-	-	-	-
Stage 2	382	519	-	568	740	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.4	12.8	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	847	690	1030	-	-
HCM Lane V/C Ratio	-	-	-	0.214	0.335	-	-	-
HCM Control Delay (s/veh)	0	-	-	10.4	12.8	0	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0.8	1.5	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	124	9	0	337	1	5	0	0	4	0	1
Future Vol, veh/h	0	124	9	0	337	1	5	0	0	4	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	0	124	9	0	337	1	5	0	0	4	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	338	0	0	133	0	0	467	467	129	467	471	338
Stage 1	-	-	-	-	-	-	129	129	-	338	338	-
Stage 2	-	-	-	-	-	-	338	338	-	129	133	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1232	-	-	1464	-	-	509	496	926	509	494	709
Stage 1	-	-	-	-	-	-	880	793	-	681	644	-
Stage 2	-	-	-	-	-	-	681	644	-	880	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1464	-	-	508	496	926	509	494	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	508	496	-	509	494	-
Stage 1	-	-	-	-	-	-	880	793	-	681	644	-
Stage 2	-	-	-	-	-	-	680	644	-	880	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	12.2	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	508	1232	-	-	1464	-	-	539
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.009
HCM Control Delay (s/veh)	12.2	0	-	-	0	-	-	11.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Future Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	3	0	0	1	0	2	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	4	5	1	5	4	1	1	0	0	2	0	0
Stage 1	1	1	-	3	3	-	-	-	-	-	-	-
Stage 2	3	4	-	2	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1022	894	1090	1021	896	1090	1635	-	-	1634	-	-
Stage 1	1027	899	-	1025	897	-	-	-	-	-	-	-
Stage 2	1025	897	-	1026	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1021	893	1090	1019	895	1090	1635	-	-	1634	-	-
Mov Cap-2 Maneuver	1021	893	-	1019	895	-	-	-	-	-	-	-
Stage 1	1026	899	-	1024	896	-	-	-	-	-	-	-
Stage 2	1024	896	-	1025	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.5	2.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	1019	1634	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Intersection Delay, s/veh	6.5
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	2	0	0	10
Future Vol, veh/h	3	2	2	0	0	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	2	2	0	0	10
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	6.8	7.1	6.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	100%	60%	0%
Vol Thru, %	0%	0%	0%
Vol Right, %	0%	40%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	2	5	10
LT Vol	2	3	0
Through Vol	0	0	0
RT Vol	0	2	10
Lane Flow Rate	2	5	10
Geometry Grp	1	1	1
Degree of Util (X)	0.002	0.005	0.009
Departure Headway (Hd)	4.115	3.801	3.31
Convergence, Y/N	Yes	Yes	Yes
Cap	874	947	1087
Service Time	2.117	1.801	1.311
HCM Lane V/C Ratio	0.002	0.005	0.009
HCM Control Delay, s/veh	7.1	6.8	6.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0	0

2041 Future Total Intersection Capacity Analysis

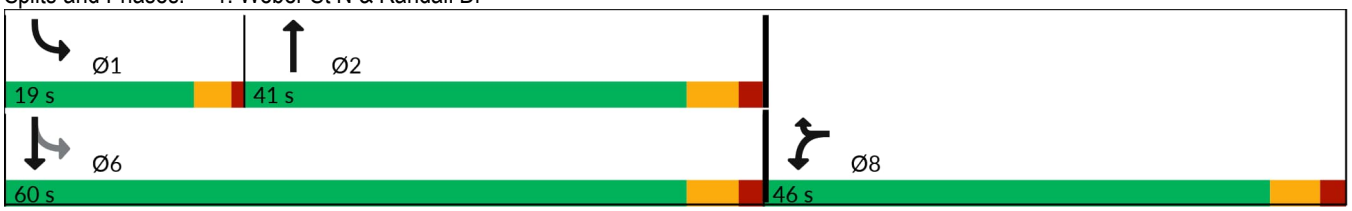
2041

Weekday AM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	72	24	519	45	399
Future Volume (vph)	72	24	519	45	399
Lane Group Flow (vph)	72	24	627	45	399
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.33	0.10	0.50	0.08	0.28
Control Delay (s/veh)	33.2	12.5	9.7	3.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	12.5	9.7	3.3	3.8
Queue Length 50th (m)	9.8	0.0	49.3	1.4	15.1
Queue Length 95th (m)	21.5	6.1	92.2	4.3	30.5
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	767	788	1245	631	1400
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.50	0.07	0.29

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Weber St N & Randall Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	24	519	108	45	399
Future Volume (vph)	72	24	519	108	45	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1754		1607	1773
Flt Permitted	0.95	1.00	1.00		0.32	1.00
Satd. Flow (perm)	1394	1413	1754		541	1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	24	519	108	45	399
RTOR Reduction (vph)	0	21	4	0	0	0
Lane Group Flow (vph)	72	3	623	0	45	399
Confl. Peds. (#/hr)				6	6	
Heavy Vehicles (%)	28%	13%	4%	5%	11%	6%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	8.1	8.1	51.3		59.1	59.1
Effective Green, g (s)	10.1	10.1	53.3		59.1	61.1
Actuated g/C Ratio	0.13	0.13	0.67		0.75	0.77
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	180	1180		454	1367
v/s Ratio Prot	c0.05	0.00	c0.36		0.00	c0.23
v/s Ratio Perm					0.07	
v/c Ratio	0.40	0.01	0.52		0.09	0.29
Uniform Delay, d1	31.7	30.2	6.5		3.9	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.0	1.6		0.0	0.5
Delay (s)	33.3	30.2	8.2		4.0	3.2
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	32.5		8.2			3.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

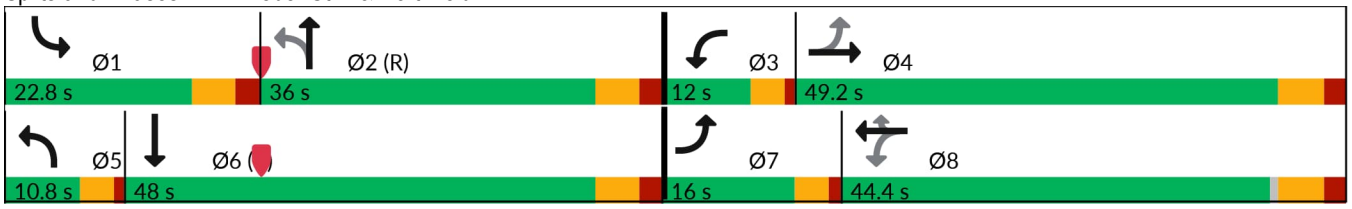
c Critical Lane Group

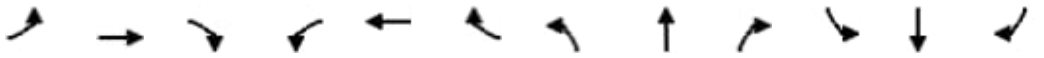
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	156	974	68	675	122	31	129	210	360
Future Volume (vph)	156	974	68	675	122	31	129	210	360
Lane Group Flow (vph)	156	1058	68	675	122	31	228	210	415
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.5	44.4	9.0	44.4	44.4	9.5	36.0	13.0	36.0
Total Split (s)	16.0	49.2	12.0	44.4	44.4	10.8	36.0	22.8	48.0
Total Split (%)	13.3%	41.0%	10.0%	37.0%	37.0%	9.0%	30.0%	19.0%	40.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
v/c Ratio	0.50	0.86	0.42	0.58	0.21	0.09	0.26	0.43	0.35
Control Delay (s/veh)	24.1	43.2	26.0	34.9	2.8	20.0	20.1	49.0	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.1	43.2	26.0	34.9	2.8	20.0	20.1	49.0	27.5
Queue Length 50th (m)	21.7	125.4	9.0	72.0	0.0	4.2	12.9	24.5	37.4
Queue Length 95th (m)	35.7	155.8	17.6	92.2	7.5	10.1	23.9	37.1	51.3
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	310	1220	161	1147	572	316	857	480	1180
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.87	0.42	0.59	0.21	0.10	0.27	0.44	0.35

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15.6 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Pretimed

Splits and Phases: 2: Weber St N & Northfield Dr W





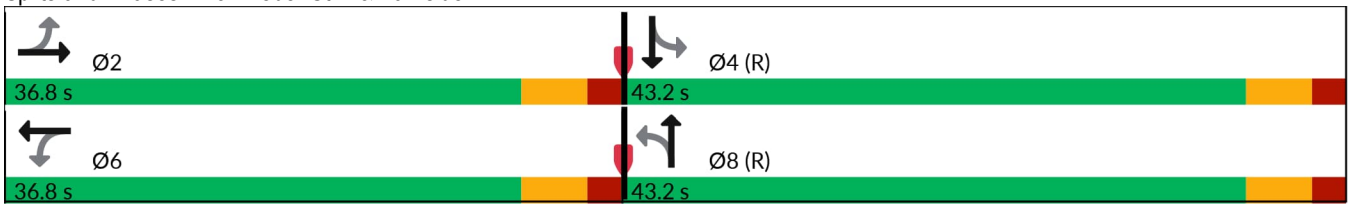
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	974	84	68	675	122	31	129	99	210	360	55
Future Volume (vph)	156	974	84	68	675	122	31	129	99	210	360	55
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3226		1555	3341	1371	1592	2941		3067	3191	
Flt Permitted	0.21	1.00		0.10	1.00	1.00	0.50	1.00		0.95	1.00	
Satd. Flow (perm)	382	3226		167	3341	1371	853	2941		3067	3191	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	974	84	68	675	122	31	129	99	210	360	55
RTOR Reduction (vph)	0	6	0	0	0	80	0	73	0	0	10	0
Lane Group Flow (vph)	156	1052	0	68	675	42	31	155	0	210	405	0
Confl. Peds. (#/hr)	3		16	16		3	16		14	14		16
Heavy Vehicles (%)	0%	2%	1%	6%	6%	4%	3%	6%	3%	6%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	55.2	43.2		47.2	39.2	39.2	36.8	30.0		16.8	42.0	
Effective Green, g (s)	55.2	45.2		47.2	41.2	41.2	36.8	32.0		18.8	44.0	
Actuated g/C Ratio	0.46	0.38		0.39	0.34	0.34	0.31	0.27		0.16	0.37	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	304	1215		158	1147	470	303	784		480	1170	
v/s Ratio Prot	c0.05	c0.33		0.03	0.20		0.01	0.05		c0.07	c0.13	
v/s Ratio Perm	0.18			0.14		0.03	0.03					
v/c Ratio	0.51	0.86		0.43	0.58	0.08	0.10	0.19		0.43	0.34	
Uniform Delay, d1	21.3	34.6		26.2	32.4	26.6	29.4	34.0		45.8	27.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	8.4		8.3	2.2	0.3	0.6	0.5		2.8	0.8	
Delay (s)	27.3	43.0		34.5	34.6	27.0	30.0	34.6		48.6	28.3	
Level of Service	C	D		C	C	C	C	C		D	C	
Approach Delay (s/veh)		41.0			33.5			34.0			35.2	
Approach LOS		D			C			C			D	

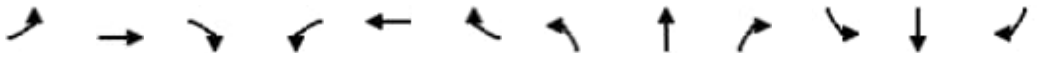
Intersection Summary			
HCM 2000 Control Delay (s/veh)	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	74	185	252	238	16	172	30	330
Future Volume (vph)	74	185	252	238	16	172	30	330
Lane Group Flow (vph)	74	234	252	251	16	254	30	482
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (s)	36.8	36.8	36.8	36.8	43.2	43.2	43.2	43.2
Total Split (%)	46.0%	46.0%	46.0%	46.0%	54.0%	54.0%	54.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.20	0.36	0.65	0.37	0.04	0.18	0.06	0.32
Control Delay (s/veh)	17.0	16.8	28.9	18.2	12.3	7.9	12.4	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.0	16.8	28.9	18.2	12.3	7.9	12.4	9.4
Queue Length 50th (m)	7.4	22.8	31.6	26.7	1.4	7.4	2.5	16.2
Queue Length 95th (m)	16.8	40.6	59.5	45.4	4.8	14.0	7.2	26.2
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	370	649	384	665	332	1380	451	1479
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.36	0.66	0.38	0.05	0.18	0.07	0.33

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42.7 (53%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	185	49	252	238	13	16	172	82	30	330	152
Future Volume (vph)	74	185	49	252	238	13	16	172	82	30	330	152
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1603	1554		1605	1618		1535	2730		1550	2883	
Flt Permitted	0.53	1.00		0.55	1.00		0.44	1.00		0.59	1.00	
Satd. Flow (perm)	905	1554		939	1618		715	2730		970	2883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	185	49	252	238	13	16	172	82	30	330	152
RTOR Reduction (vph)	0	12	0	0	2	0	0	42	0	0	67	0
Lane Group Flow (vph)	74	222	0	252	249	0	16	212	0	30	415	0
Confl. Peds. (#/hr)	1		13	13		1	3					3
Heavy Vehicles (%)	4%	1%	2%	2%	0%	0%	0%	7%	9%	0%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		37.2	37.2		37.2	37.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8		37.2	39.2		37.2	39.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.49		0.47	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	371	637		384	663		332	1337		451	1412	
v/s Ratio Prot		0.14			0.15			0.08			c0.14	
v/s Ratio Perm	0.08			c0.27			0.02			0.03		
v/c Ratio	0.19	0.34		0.65	0.37		0.04	0.15		0.06	0.29	
Uniform Delay, d1	15.1	16.2		19.0	16.4		11.7	11.2		11.8	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	1.5		8.4	1.6		0.2	0.2		0.2	0.5	
Delay (s)	16.3	17.7		27.5	18.0		11.9	11.5		12.0	12.6	
Level of Service	B	B		C	B		B	B		B	B	
Approach Delay (s/veh)		17.4			22.8			11.5			12.6	
Approach LOS		B			C			B			B	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	16.6	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.46				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0		
Intersection Capacity Utilization	92.3%	ICU Level of Service	F		
Analysis Period (min)	15				

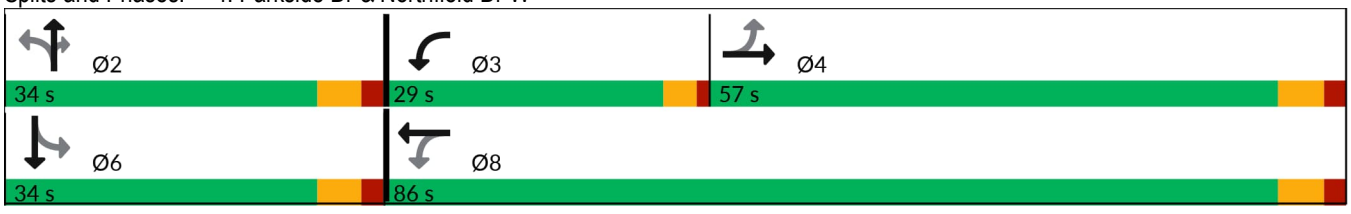
c Critical Lane Group

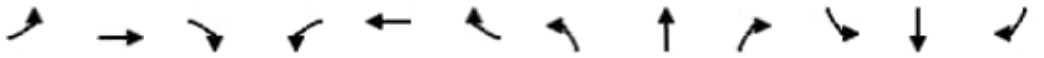
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	21	1247	393	851	16	37	215	94	233
Future Volume (vph)	21	1247	393	851	16	37	215	94	233
Lane Group Flow (vph)	21	1271	393	1030	0	53	215	94	239
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	40.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	46.0	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	57.0	57.0	29.0	86.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	47.5%	47.5%	24.2%	71.7%	28.3%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.93	0.97	0.48		0.15	0.41	0.29	0.58
Control Delay (s/veh)	21.2	44.8	73.4	9.5		36.6	7.3	39.5	45.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.2	44.8	73.4	9.5		36.6	7.3	39.5	45.6
Queue Length 50th (m)	3.0	152.3	80.8	54.7		10.3	0.0	19.0	52.1
Queue Length 95th (m)	8.6	#200.8	#146.6	68.9		21.7	19.6	35.0	80.0
Internal Link Dist (m)		123.1		82.8		475.0			37.0
Turn Bay Length (m)	35.0		25.0					26.0	
Base Capacity (vph)	218	1403	404	2146		345	517	316	412
Starvation Cap Reductn	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.10	0.91	0.97	0.48		0.15	0.42	0.30	0.58

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 118.6
Natural Cycle: 100
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1247	24	393	851	179	16	37	215	94	233	6
Future Volume (vph)	21	1247	24	393	851	179	16	37	215	94	233	6
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.98	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3137		1635	3083			1519	1408	1645	1625	
Flt Permitted	0.27	1.00		0.07	1.00			0.88	1.00	0.72	1.00	
Satd. Flow (perm)	487	3137		128	3083			1365	1408	1251	1625	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	1247	24	393	851	179	16	37	215	94	233	6
RTOR Reduction (vph)	0	1	0	0	15	0	0	0	161	0	1	0
Lane Group Flow (vph)	21	1270	0	393	1015	0	0	53	54	94	238	0
Confl. Peds. (#/hr)	6		18	18		6	10		3	3		10
Heavy Vehicles (%)	0%	5%	8%	2%	5%	4%	0%	8%	2%	2%	1%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	49.6	49.6		78.6	78.6			28.0	28.0	28.0	28.0	
Effective Green, g (s)	51.6	51.6		78.6	80.6			30.0	30.0	30.0	30.0	
Actuated g/C Ratio	0.44	0.44		0.66	0.68			0.25	0.25	0.25	0.25	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	211	1364		402	2095			345	356	316	411	
v/s Ratio Prot		0.40		c0.21	0.33						c0.15	
v/s Ratio Perm	0.04			c0.44				0.04	0.04	0.08		
v/c Ratio	0.09	0.93		0.97	0.48			0.15	0.15	0.29	0.57	
Uniform Delay, d1	19.7	31.8		37.7	9.0			34.4	34.4	35.7	38.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	11.5		38.5	0.1			0.9	0.9	2.3	5.8	
Delay (s)	19.9	43.3		76.2	9.2			35.3	35.3	38.1	44.6	
Level of Service	B	D		E	A			D	D	D	D	
Approach Delay (s/veh)		42.9			27.7			35.3			42.8	
Approach LOS		D			C			D			D	

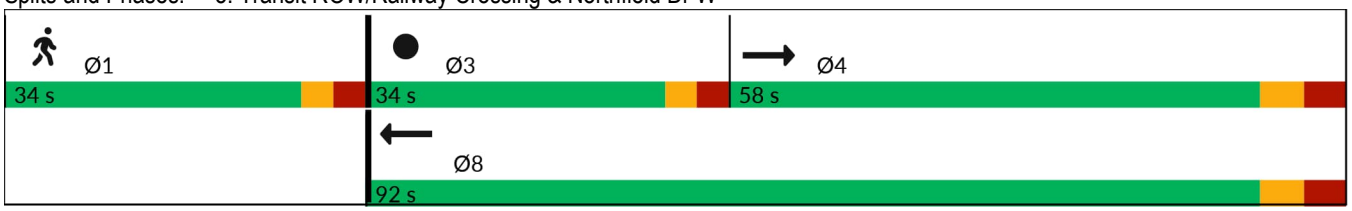
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

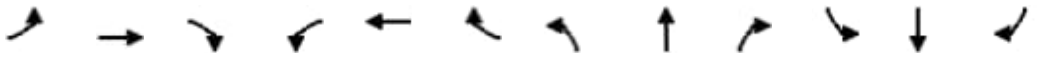
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1556	1423		
Future Volume (vph)	1556	1423		
Lane Group Flow (vph)	1556	1423		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.64	0.48		
Control Delay (s/veh)	25.6	7.2		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	25.6	7.2		
Queue Length 50th (m)	122.4	88.6		
Queue Length 95th (m)	141.4	106.1		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2924		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.64	0.49		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1556	0	0	1423	0	0	0	0	0	0	0
Future Volume (vph)	0	1556	0	0	1423	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1556	0	0	1423	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1556	0	0	1423	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	19		59	59		19	26		26	26		26
Heavy Vehicles (%)	0%	4%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2793							
v/s Ratio Prot		c0.32			c0.40							
v/s Ratio Perm												
v/c Ratio		0.65			0.50							
Uniform Delay, d1		22.6			4.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.4			0.6							
Delay (s)		24.1			5.1							
Level of Service		C			A							
Approach Delay (s/veh)		24.1			5.1			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

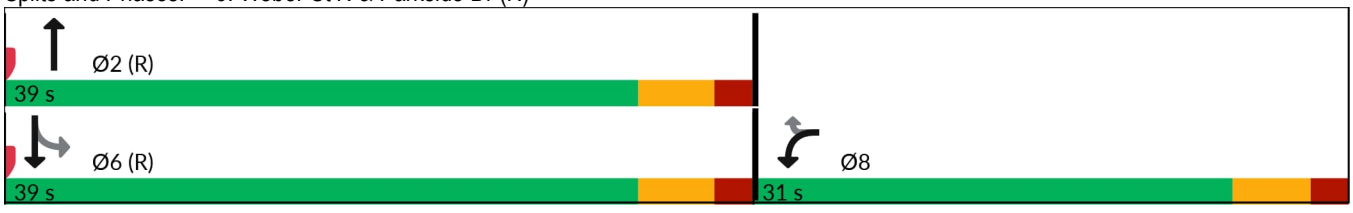
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	206	312	315	52	419
Future Volume (vph)	206	312	315	52	419
Lane Group Flow (vph)	206	312	408	52	419
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	30.0	30.0	30.0
Minimum Split (s)	31.0	31.0	36.0	36.0	36.0
Total Split (s)	31.0	31.0	39.0	39.0	39.0
Total Split (%)	44.3%	44.3%	55.7%	55.7%	55.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	6.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.54	0.55	0.19	0.09	0.20
Control Delay (s/veh)	28.4	6.7	4.6	7.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.4	6.7	4.6	7.0	5.6
Queue Length 50th (m)	25.2	0.0	7.6	2.4	10.0
Queue Length 95th (m)	39.6	16.4	16.8	8.3	20.5
Internal Link Dist (m)	67.8		212.4		232.9
Turn Bay Length (m)				33.0	
Base Capacity (vph)	643	742	2072	553	2090
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.42	0.20	0.09	0.20

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 6: Weber St N & Parkside Dr (N)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	206	312	315	93	52	419
Future Volume (vph)	206	312	315	93	52	419
Ideal Flow (vphpl)	1775	1750	1775	1775	1775	1775
Total Lost time (s)	4.0	4.0	4.0		6.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1668	1428	3108		1631	3176
Flt Permitted	0.95	1.00	1.00		0.51	1.00
Satd. Flow (perm)	1668	1428	3108		880	3176
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	206	312	315	93	52	419
RTOR Reduction (vph)	0	241	27	0	0	0
Lane Group Flow (vph)	206	71	381	0	52	419
Confl. Peds. (#/hr)				2	2	
Heavy Vehicles (%)	0%	3%	4%	0%	2%	5%
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	13.9	13.9	44.1		44.1	44.1
Effective Green, g (s)	15.9	15.9	46.1		44.1	46.1
Actuated g/C Ratio	0.23	0.23	0.66		0.63	0.66
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	378	324	2046		554	2091
v/s Ratio Prot	c0.12		0.12			c0.13
v/s Ratio Perm		0.05			0.06	
v/c Ratio	0.54	0.21	0.18		0.09	0.20
Uniform Delay, d1	23.8	21.9	4.6		5.0	4.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.3	0.2		0.3	0.2
Delay (s)	25.4	22.3	4.8		5.4	4.9
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	23.5		4.8			4.9
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	35	4	0	414	48	0	5	0	45	14	104
Future Vol, veh/h	106	35	4	0	414	48	0	5	0	45	14	104
Conflicting Peds, #/hr	2	0	0	0	0	2	5	0	3	3	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	106	35	4	0	414	48	0	5	0	45	14	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	39	0	0	468	713	40	695	691	238
Stage 1	-	-	-	-	-	-	249	249	-	440	440	-
Stage 2	-	-	-	-	-	-	219	464	-	255	251	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1108	-	-	1584	-	-	496	360	1037	346	370	769
Stage 1	-	-	-	-	-	-	759	704	-	571	581	-
Stage 2	-	-	-	-	-	-	769	567	-	754	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1106	-	-	1584	-	-	382	324	1035	315	333	765
Mov Cap-2 Maneuver	-	-	-	-	-	-	382	324	-	315	333	-
Stage 1	-	-	-	-	-	-	685	635	-	514	580	-
Stage 2	-	-	-	-	-	-	646	566	-	673	634	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	6.3	0	16.3	13.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	324	1106	-	-	1584	-	-	315	663
HCM Lane V/C Ratio	0.015	0.096	-	-	-	-	-	0.143	0.178
HCM Control Delay (s/veh)	16.3	8.6	0	-	0	-	-	18.3	11.6
HCM Lane LOS	C	A	A	-	A	-	-	C	B
HCM 95th %tile Q (veh)	0	0.3	-	-	0	-	-	0.5	0.6

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	48	30	58	442	10	19	7	0	10	13	1
Future Vol, veh/h	2	48	30	58	442	10	19	7	0	10	13	1
Conflicting Peds, #/hr	3	0	3	3	0	3	5	0	2	2	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	2	48	30	58	442	10	19	7	0	10	13	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	455	0	0	81	0	0	645	641	68	639	651	455
Stage 1	-	-	-	-	-	-	70	70	-	566	566	-
Stage 2	-	-	-	-	-	-	575	571	-	73	85	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1116	-	-	1529	-	-	388	395	1001	392	390	609
Stage 1	-	-	-	-	-	-	945	841	-	513	511	-
Stage 2	-	-	-	-	-	-	507	508	-	942	828	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1113	-	-	1525	-	-	360	372	997	369	368	605
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	372	-	369	368	-
Stage 1	-	-	-	-	-	-	941	838	-	511	484	-
Stage 2	-	-	-	-	-	-	466	481	-	931	825	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0.8	15.7	15.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	1113	-	-	1525	-	-	375
HCM Lane V/C Ratio	0.072	0.002	-	-	0.038	-	-	0.064
HCM Control Delay (s/veh)	15.7	8.2	0	-	7.5	0	-	15.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q (veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1272	750	95	16	111
Future Vol, veh/h	3	1272	750	95	16	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	5	0	13	0
Mvmt Flow	3	1272	750	95	16	111

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	845	0	-	0	1440	423
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	4.1	-	-	-	7.06	6.9
Critical Hdwy Stg 1	-	-	-	-	6.06	-
Critical Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	2.2	-	-	-	3.63	3.3
Pot Cap-1 Maneuver	800	-	-	-	112	585
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	800	-	-	-	111	585
Mov Cap-2 Maneuver	-	-	-	-	111	-
Stage 1	-	-	-	-	372	-
Stage 2	-	-	-	-	457	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.1	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	800	-	-	-	111	585
HCM Lane V/C Ratio	0.004	-	-	-	0.144	0.19
HCM Control Delay (s/veh)	9.5	0.1	-	-	42.8	12.6
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q (veh)	0	-	-	-	0.5	0.7

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1509	53	0	1396	219	0	0	17	0	0	33
Future Vol, veh/h	0	1509	53	0	1396	219	0	0	17	0	0	33
Conflicting Peds, #/hr	3	0	3	3	0	3	10	0	0	0	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	7	0	0	3	5	0	0	0	0	0	9
Mvmt Flow	0	1509	53	0	1396	219	0	0	17	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	784	-	-	821
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	292	0	0	303
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	291	-	-	300
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	18.1	18.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	291	-	-	-	-	300
HCM Lane V/C Ratio	0.058	-	-	-	-	0.11
HCM Control Delay (s/veh)	18.1	-	-	-	-	18.5
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	-	0.4

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	0	0	19	88	13
Future Vol, veh/h	7	0	0	19	88	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	0	0	19	88	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	114	95	101	0	-	0
Stage 1	95	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	887	967	1504	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	887	967	1504	-	-	-
Mov Cap-2 Maneuver	887	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1504	-	887	-	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s/veh)	0	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	22	19	88	0
Future Vol, veh/h	0	8	22	19	88	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	8	22	19	88	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	151	88	88	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	846	976	1520	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	833	976	1520	-	-	-
Mov Cap-2 Maneuver	833	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.7	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	976	-	-
HCM Lane V/C Ratio	0.014	-	0.008	-	-
HCM Control Delay (s/veh)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	11	41	96	0
Future Vol, veh/h	0	17	11	41	96	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	17	11	41	96	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	159	96	96	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	837	966	1510	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	831	966	1510	-	-	-
Mov Cap-2 Maneuver	831	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.8	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1510	-	966	-	-
HCM Lane V/C Ratio	0.007	-	0.018	-	-
HCM Control Delay (s/veh)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	41	0	19	8	33	57	30	83	0
Future Vol, veh/h	0	0	3	41	0	19	8	33	57	30	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	3	41	0	19	8	33	57	30	83	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	230	249	83	223	221	62	83	0	0	90	0	0
Stage 1	143	143	-	78	78	-	-	-	-	-	-	-
Stage 2	87	106	-	145	143	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	729	657	982	737	681	1009	1527	-	-	1518	-	-
Stage 1	865	782	-	936	834	-	-	-	-	-	-	-
Stage 2	926	811	-	863	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	701	639	982	719	663	1009	1527	-	-	1518	-	-
Mov Cap-2 Maneuver	701	639	-	719	663	-	-	-	-	-	-	-
Stage 1	860	766	-	930	829	-	-	-	-	-	-	-
Stage 2	903	806	-	842	766	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.7	9.9	0.6	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1527	-	-	982	791	1518	-	-
HCM Lane V/C Ratio	0.005	-	-	0.003	0.076	0.02	-	-
HCM Control Delay (s/veh)	7.4	0	-	8.7	9.9	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.1	-	-

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	57	2	0	0	513	3	11	0	4	0
Future Vol, veh/h	0	0	57	2	0	0	513	3	11	0	4	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	4	0	0	0	2	0	0	0	0	0
Mvmt Flow	0	0	57	2	0	0	513	3	11	0	4	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.4	13.9	7.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	97%	0%	100%	0%
Vol Thru, %	1%	0%	0%	100%
Vol Right, %	2%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	527	57	2	4
LT Vol	513	0	2	0
Through Vol	3	0	0	4
RT Vol	11	57	0	0
Lane Flow Rate	527	57	2	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.618	0.072	0.003	0.005
Departure Headway (Hd)	4.224	4.516	5.395	4.57
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	798	667	786
Service Time	2.268	2.516	3.401	2.582
HCM Lane V/C Ratio	0.617	0.071	0.003	0.005
HCM Control Delay, s/veh	13.9	7.9	8.4	7.6
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	4.4	0.2	0	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	8	0	0	11	527	17	0	63	0
Future Vol, veh/h	0	0	9	8	0	0	11	527	17	0	63	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	6	0
Mvmt Flow	0	0	9	8	0	0	11	527	17	0	63	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	621	629	63	626	621	536	63	0	0	544	0	0
Stage 1	63	63	-	558	558	-	-	-	-	-	-	-
Stage 2	558	566	-	68	63	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	403	402	1007	400	406	549	1553	-	-	1035	-	-
Stage 1	953	846	-	518	515	-	-	-	-	-	-	-
Stage 2	518	511	-	947	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	400	398	1007	394	402	549	1553	-	-	1035	-	-
Mov Cap-2 Maneuver	400	398	-	394	402	-	-	-	-	-	-	-
Stage 1	943	846	-	513	510	-	-	-	-	-	-	-
Stage 2	513	506	-	939	846	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	14.3	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	1007	394	1035	-	-
HCM Lane V/C Ratio	0.007	-	-	0.009	0.02	-	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.6	14.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	253	0	0	443	0	112	125	0	80	0
Future Vol, veh/h	0	0	253	0	0	443	0	112	125	0	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	5	0
Mvmt Flow	0	0	253	0	0	443	0	112	125	0	80	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	476	317	80	382	255	175	-	0	0	-	-	0
Stage 1	80	80	-	175	175	-	-	-	-	-	-	-
Stage 2	396	237	-	207	80	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	503	602	986	580	652	874	0	-	-	0	-	-
Stage 1	934	832	-	832	758	-	0	-	-	0	-	-
Stage 2	633	713	-	800	832	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	248	602	986	431	652	874	-	-	-	-	-	-
Mov Cap-2 Maneuver	248	602	-	431	652	-	-	-	-	-	-	-
Stage 1	934	832	-	832	758	-	-	-	-	-	-	-
Stage 2	312	713	-	595	832	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.9	13.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	986	874	-	-
HCM Lane V/C Ratio	-	-	0.257	0.507	-	-
HCM Control Delay (s/veh)	-	-	9.9	13.3	-	-
HCM Lane LOS	-	-	A	B	-	-
HCM 95th %tile Q (veh)	-	-	1	2.9	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	56	1	0	509	4	1	0	0	1	0	0
Future Vol, veh/h	1	56	1	0	509	4	1	0	0	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	56	1	0	509	4	1	0	0	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	513	0	0	57	0	0	570	572	57	570	570	511
Stage 1	-	-	-	-	-	-	59	59	-	511	511	-
Stage 2	-	-	-	-	-	-	511	513	-	59	59	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1063	-	-	1560	-	-	435	433	1015	435	434	567
Stage 1	-	-	-	-	-	-	958	850	-	549	540	-
Stage 2	-	-	-	-	-	-	549	539	-	958	850	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1063	-	-	1560	-	-	435	433	1015	435	434	567
Mov Cap-2 Maneuver	-	-	-	-	-	-	435	433	-	435	434	-
Stage 1	-	-	-	-	-	-	957	849	-	548	540	-
Stage 2	-	-	-	-	-	-	549	539	-	957	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.1	0	13.3	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	435	1063	-	-	1560	-	-	435
HCM Lane V/C Ratio	0.002	0.001	-	-	-	-	-	0.002
HCM Control Delay (s/veh)	13.3	8.4	0	-	0	-	-	13.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Future Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	3	0	0	1	0	2	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	4	5	1	5	4	1	1	0	0	2	0	0
Stage 1	1	1	-	3	3	-	-	-	-	-	-	-
Stage 2	3	4	-	2	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1022	894	1090	1021	896	1090	1635	-	-	1634	-	-
Stage 1	1027	899	-	1025	897	-	-	-	-	-	-	-
Stage 2	1025	897	-	1026	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1021	893	1090	1019	895	1090	1635	-	-	1634	-	-
Mov Cap-2 Maneuver	1021	893	-	1019	895	-	-	-	-	-	-	-
Stage 1	1026	899	-	1024	896	-	-	-	-	-	-	-
Stage 2	1024	896	-	1025	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.5	2.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	1019	1634	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	0	0	0	0	2
Future Vol, veh/h	11	0	0	0	0	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	0	0	0	0	2
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	7.2	0	6.3
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	100%	0%
Vol Thru, %	100%	0%	0%
Vol Right, %	0%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	11	2
LT Vol	0	11	0
Through Vol	0	0	0
RT Vol	0	0	2
Lane Flow Rate	0	11	2
Geometry Grp	1	1	1
Degree of Util (X)	0	0.013	0.002
Departure Headway (Hd)	3.921	4.104	3.32
Convergence, Y/N	Yes	Yes	Yes
Cap	0	877	1083
Service Time	1.927	2.104	1.325
HCM Lane V/C Ratio	0	0.013	0.002
HCM Control Delay, s/veh	6.9	7.2	6.3
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0	0

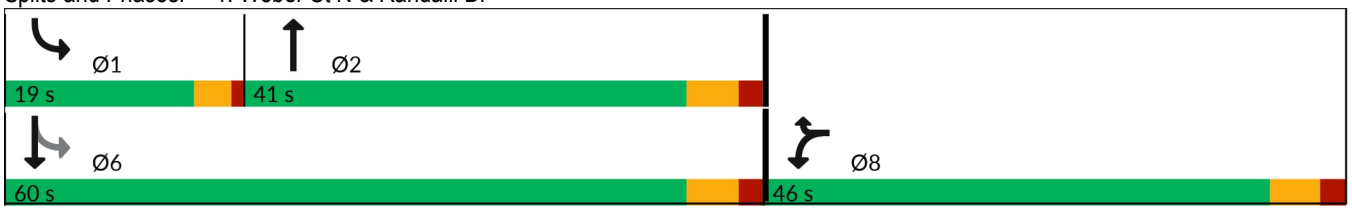
Weekday PM Peak Hour

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	136	560	28	511
Future Volume (vph)	295	136	560	28	511
Lane Group Flow (vph)	295	136	632	28	511
Turn Type	Prot	Prot	NA	pm+pt	NA
Protected Phases	8	8	2	1	6
Permitted Phases	8	8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	41.0	9.5	42.0
Total Split (s)	46.0	46.0	41.0	19.0	60.0
Total Split (%)	43.4%	43.4%	38.7%	17.9%	56.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	8.0	4.0	4.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
v/c Ratio	0.73	0.27	0.67	0.07	0.46
Control Delay (s/veh)	40.3	6.9	23.7	9.1	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.3	6.9	23.7	9.1	12.0
Queue Length 50th (m)	48.2	1.7	69.4	1.8	44.4
Queue Length 95th (m)	76.8	14.2	#190.8	6.6	91.9
Internal Link Dist (m)	723.8		106.7		467.0
Turn Bay Length (m)		30.0		100.0	
Base Capacity (vph)	651	726	932	474	1105
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.19	0.68	0.06	0.46

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 90.4
Natural Cycle: 75
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Weber St N & Randalll Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	295	136	560	72	28	511
Future Volume (vph)	295	136	560	72	28	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	8.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1394	1413	1742		1607	1773
Flt Permitted	0.95	1.00	1.00		0.26	1.00
Satd. Flow (perm)	1394	1413	1742		452	1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	295	136	560	72	28	511
RTOR Reduction (vph)	0	89	3	0	0	0
Lane Group Flow (vph)	295	47	629	0	28	511
Confl. Peds. (#/hr)				5	5	
Heavy Vehicles (%)	28%	13%	6%	5%	11%	6%
Turn Type	Prot	Prot	NA		pm+pt	NA
Protected Phases	8	8	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.0	24.0	50.3		56.9	56.9
Effective Green, g (s)	26.0	26.0	48.3		56.9	58.9
Actuated g/C Ratio	0.28	0.28	0.52		0.61	0.63
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	390	395	905		309	1124
v/s Ratio Prot	c0.21	0.03	c0.36		0.00	c0.29
v/s Ratio Perm					0.05	
v/c Ratio	0.75	0.12	0.69		0.09	0.45
Uniform Delay, d1	30.5	24.9	16.7		9.3	8.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.1	0.1	4.3		0.1	1.3
Delay (s)	38.6	25.0	21.1		9.4	10.0
Level of Service	D	C	C		A	B
Approach Delay (s/veh)	34.3		21.1			10.0
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	92.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

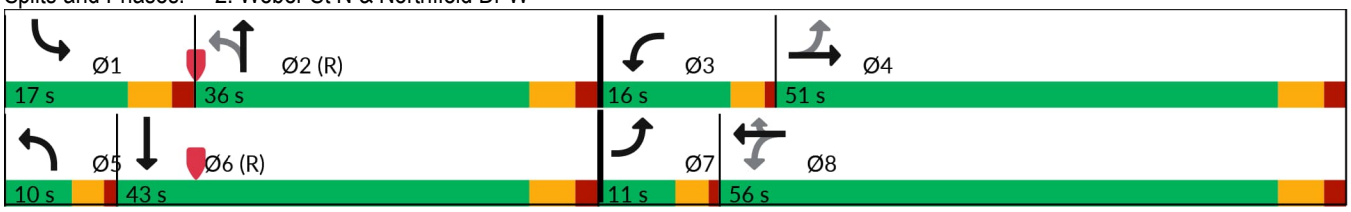
c Critical Lane Group

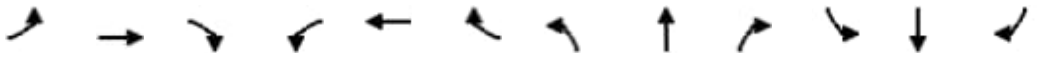
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	152	813	133	1254	154	64	329	324	354
Future Volume (vph)	152	813	133	1254	154	64	329	324	354
Lane Group Flow (vph)	152	882	133	1254	154	64	401	324	508
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8	2			
Minimum Split (s)	9.0	44.4	9.0	44.4	44.4	9.0	33.6	13.0	33.6
Total Split (s)	11.0	51.0	16.0	56.0	56.0	10.0	36.0	17.0	43.0
Total Split (%)	9.2%	42.5%	13.3%	46.7%	46.7%	8.3%	30.0%	14.2%	35.8%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	8.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
v/c Ratio	0.96	0.69	0.50	0.87	0.24	0.24	0.48	0.97	0.49
Control Delay (s/veh)	89.0	33.7	21.8	39.2	4.5	24.9	37.3	97.2	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	89.0	33.7	21.8	39.2	4.5	24.9	37.3	97.2	30.3
Queue Length 50th (m)	21.5	94.1	16.5	146.4	0.0	9.6	41.7	41.9	46.5
Queue Length 95th (m)	#65.8	118.3	28.0	179.6	13.2	19.1	57.9	#72.0	63.7
Internal Link Dist (m)		607.0		127.2			507.4		212.4
Turn Bay Length (m)	90.0		45.0		65.0	95.0		82.5	
Base Capacity (vph)	158	1268	263	1434	635	264	831	332	1028
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.70	0.51	0.87	0.24	0.24	0.48	0.98	0.49

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Weber St N & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	813	69	133	1254	154	64	329	72	324	354	154
Future Volume (vph)	152	813	69	133	1254	154	64	329	72	324	354	154
Ideal Flow (vphpl)	1775	1775	1775	1755	1900	1750	1755	1775	1775	1775	1775	1775
Grade (%)		0%			0%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0	8.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1667	3227		1555	3310	1355	1591	3061		3067	3037	
Flt Permitted	0.08	1.00		0.15	1.00	1.00	0.41	1.00		0.95	1.00	
Satd. Flow (perm)	156	3227		254	3310	1355	697	3061		3067	3037	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	152	813	69	133	1254	154	64	329	72	324	354	154
RTOR Reduction (vph)	0	5	0	0	0	92	0	15	0	0	41	0
Lane Group Flow (vph)	152	877	0	133	1254	62	64	386	0	324	467	0
Confl. Peds. (#/hr)	16		18	18		16	26		13	13		26
Heavy Vehicles (%)	0%	2%	1%	6%	7%	4%	3%	6%	3%	6%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	4	4	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)	52.0	45.0		61.0	50.0	50.0	36.0	30.0		11.0	37.0	
Effective Green, g (s)	52.0	47.0		61.0	52.0	48.0	36.0	32.0		13.0	39.0	
Actuated g/C Ratio	0.43	0.39		0.51	0.43	0.40	0.30	0.27		0.11	0.33	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	155	1263		259	1434	542	253	816		332	987	
v/s Ratio Prot	c0.06	0.27		0.05	c0.38		0.01	0.13		c0.11	c0.15	
v/s Ratio Perm	c0.37			0.21		0.05	0.06					
v/c Ratio	0.98	0.69		0.51	0.87	0.11	0.25	0.47		0.97	0.47	
Uniform Delay, d1	26.8	30.4		19.4	31.0	22.6	30.6	36.9		53.3	32.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	67.3	3.1		7.1	7.6	0.4	2.3	1.9		43.6	1.6	
Delay (s)	94.1	33.6		26.5	38.7	23.0	33.0	38.8		97.0	33.9	
Level of Service	F	C		C	D	C	C	D		F	C	
Approach Delay (s/veh)		42.5			36.1			38.0			58.4	
Approach LOS		D			D			D			E	

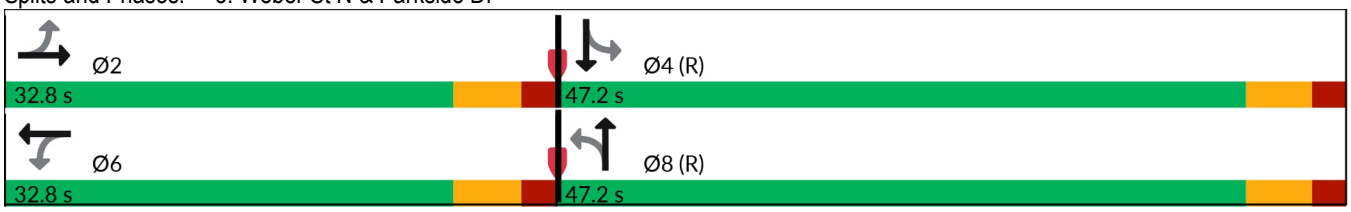
Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

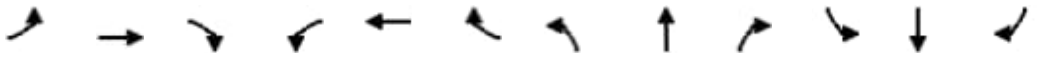
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	105	274	128	388	67	335	35	414
Future Volume (vph)	105	274	128	388	67	335	35	414
Lane Group Flow (vph)	105	323	128	413	67	495	35	521
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (s)	32.8	32.8	32.8	32.8	47.2	47.2	47.2	47.2
Total Split (%)	41.0%	41.0%	41.0%	41.0%	59.0%	59.0%	59.0%	59.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.54	0.56	0.52	0.70	0.18	0.31	0.09	0.32
Control Delay (s/veh)	32.8	24.3	29.5	29.6	12.1	7.3	10.8	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.8	24.3	29.5	29.6	12.1	7.3	10.8	9.5
Queue Length 50th (m)	13.1	39.1	15.8	55.0	5.4	14.0	2.7	19.5
Queue Length 95th (m)	#31.5	65.2	34.4	88.4	12.9	22.9	7.5	29.4
Internal Link Dist (m)		315.6		475.0		572.0		507.4
Turn Bay Length (m)	25.0		15.0		25.0		25.0	
Base Capacity (vph)	194	573	245	584	356	1553	373	1613
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.56	0.52	0.71	0.19	0.32	0.09	0.32

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2.4 (3%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Weber St N & Parkside Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	274	49	128	388	25	67	335	160	35	414	107
Future Volume (vph)	105	274	49	128	388	25	67	335	160	35	414	107
Ideal Flow (vphpl)	1775	1650	1650	1755	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.0	4.0		4.0	4.0		6.0	4.0		6.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	1569		1526	1615		1531	2743		1549	2934	
Flt Permitted	0.31	1.00		0.42	1.00		0.43	1.00		0.44	1.00	
Satd. Flow (perm)	539	1569		681	1615		693	2743		726	2934	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	274	49	128	388	25	67	335	160	35	414	107
RTOR Reduction (vph)	0	8	0	0	3	0	0	71	0	0	29	0
Lane Group Flow (vph)	105	315	0	128	410	0	67	424	0	35	492	0
Confl. Peds. (#/hr)	6		20	20		6	9		3	3		9
Heavy Vehicles (%)	3%	1%	2%	7%	0%	0%	0%	6%	8%	0%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	2	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.8	26.8		26.8	26.8		41.2	41.2		41.2	41.2	
Effective Green, g (s)	28.8	28.8		28.8	28.8		41.2	43.2		41.2	43.2	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.52	0.54		0.52	0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	194	564		245	581		356	1481		373	1584	
v/s Ratio Prot		0.20			c0.25			0.15			c0.17	
v/s Ratio Perm	0.19			0.19			0.10			0.05		
v/c Ratio	0.54	0.55		0.52	0.70		0.18	0.28		0.09	0.31	
Uniform Delay, d1	20.3	20.5		20.1	21.9		10.4	10.0		9.8	10.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.4	3.9		7.7	7.0		1.1	0.4		0.4	0.5	
Delay (s)	30.7	24.4		27.9	29.0		11.5	10.4		10.3	10.6	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s/veh)		26.0			28.7			10.6			10.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	1088	288	1617	32	113	396	190	173
Future Volume (vph)	90	1088	288	1617	32	113	396	190	173
Lane Group Flow (vph)	90	1118	288	1964	0	145	396	190	190
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	40.0	5.0	40.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	46.0	9.5	46.0	34.0	34.0	34.0	34.0	34.0
Total Split (s)	10.0	67.0	19.0	76.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	8.3%	55.8%	15.8%	63.3%	28.3%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.62	0.66	0.85	1.05		0.40	0.77	0.76	0.47
Control Delay (s/veh)	37.5	22.9	39.6	60.6		41.8	30.0	62.7	42.2
Queue Delay	0.0	0.0	0.0	19.5		0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.5	22.9	39.6	80.2		41.8	30.0	62.7	42.2
Queue Length 50th (m)	6.8	103.4	30.5	~278.3		30.2	42.6	43.9	39.4
Queue Length 95th (m)	#28.7	128.3	#77.2	#323.3		50.8	#87.7	#81.8	63.4
Internal Link Dist (m)		123.1		82.8		475.0			37.0
Turn Bay Length (m)	35.0		25.0					26.0	
Base Capacity (vph)	144	1671	347	1865		354	511	249	398
Starvation Cap Reductn	0	0	0	155		0	0	0	0
Spillback Cap Reductn	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.63	0.67	0.83	1.15		0.41	0.77	0.76	0.48

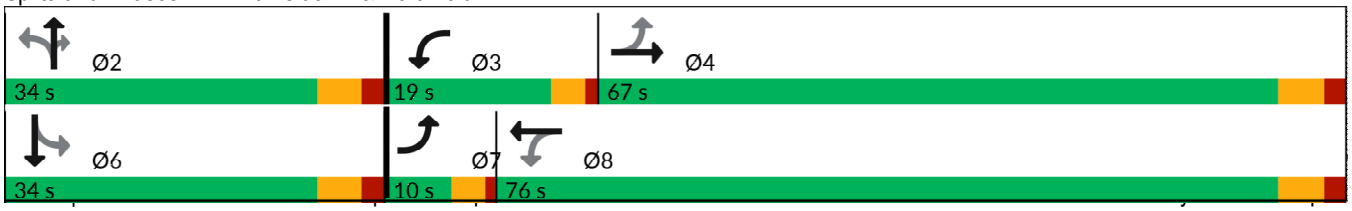
Intersection Summary

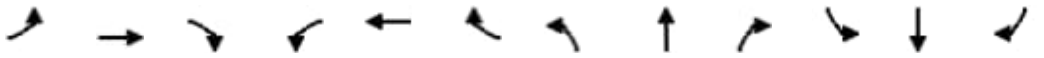
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 120
Control Type: Semi Act-Uncoord

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Parkside Dr & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1088	30	288	1617	347	32	113	396	190	173	17
Future Volume (vph)	90	1088	30	288	1617	347	32	113	396	190	173	17
Ideal Flow (vphpl)	1775	1775	1775	1775	1775	1775	1650	1650	1750	1775	1650	1650
Grade (%)		0%			0%			0%			-2%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.99	1.00	0.98	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1668	3131		1634	3084			1553	1394	1633	1581	
Flt Permitted	0.06	1.00		0.14	1.00			0.90	1.00	0.57	1.00	
Satd. Flow (perm)	113	3131		258	3084			1416	1394	995	1581	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	1088	30	288	1617	347	32	113	396	190	173	17
RTOR Reduction (vph)	0	1	0	0	15	0	0	0	163	0	3	0
Lane Group Flow (vph)	90	1117	0	288	1949	0	0	145	233	190	187	0
Confl. Peds. (#/hr)	9		25	25		9	2		11	11		2
Heavy Vehicles (%)	0%	5%	8%	2%	5%	3%	0%	5%	2%	2%	3%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	2	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	68.0	62.0		80.0	70.0			28.0	28.0	28.0	28.0	
Effective Green, g (s)	68.0	64.0		80.0	72.0			30.0	30.0	30.0	30.0	
Actuated g/C Ratio	0.57	0.53		0.67	0.60			0.25	0.25	0.25	0.25	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	1669		332	1850			354	348	248	395	
v/s Ratio Prot	0.03	0.36		c0.10	c0.63						0.12	
v/s Ratio Perm	0.33			0.48				0.10	0.17	c0.19		
v/c Ratio	0.63	0.66		0.86	1.05			0.40	0.67	0.76	0.47	
Uniform Delay, d1	25.0	20.3		19.5	24.0			37.6	40.5	41.7	38.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.1	1.0		20.4	36.6			3.4	9.8	19.9	4.0	
Delay (s)	34.1	21.3		40.0	60.6			41.0	50.4	61.7	42.3	
Level of Service	C	C		D	E			D	D	E	D	
Approach Delay (s/veh)		22.3			57.9			47.9			52.0	
Approach LOS		C			E			D			D	

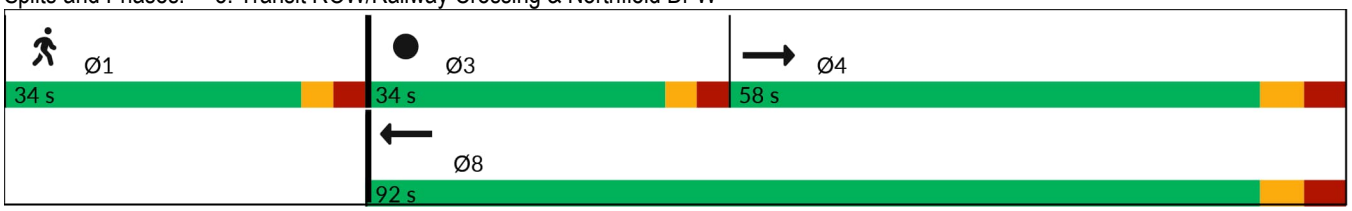
Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		

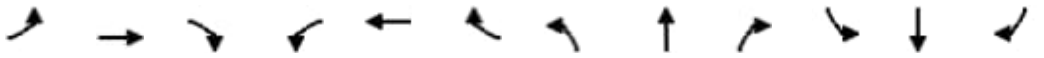
c Critical Lane Group

Lane Group	EBT	WBT	Ø1	Ø3
Lane Configurations				
Traffic Volume (vph)	1674	2252		
Future Volume (vph)	1674	2252		
Lane Group Flow (vph)	1674	2252		
Turn Type	NA	NA		
Protected Phases	4	8	1	3
Permitted Phases				
Detector Phase	4	8		
Switch Phase				
Minimum Initial (s)	5.0	5.0	7.0	7.0
Minimum Split (s)	50.0	50.0	34.0	24.0
Total Split (s)	58.0	92.0	34.0	34.0
Total Split (%)	46.0%	73.0%	27%	27%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	4.0	4.0	3.0	3.0
Lost Time Adjust (s)	-4.0	-4.0		
Total Lost Time (s)	4.0	4.0		
Lead/Lag	Lag			Lead
Lead-Lag Optimize?	Yes			Yes
Recall Mode	Max	Max	None	Max
v/c Ratio	0.69	0.77		
Control Delay (s/veh)	26.8	13.5		
Queue Delay	0.0	0.0		
Total Delay (s/veh)	26.9	13.5		
Queue Length 50th (m)	136.4	228.7		
Queue Length 95th (m)	157.0	275.1		
Internal Link Dist (m)	82.8	6.9		
Turn Bay Length (m)				
Base Capacity (vph)	2413	2924		
Starvation Cap Reductn	84	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.72	0.77		

Intersection Summary
Cycle Length: 126
Actuated Cycle Length: 112.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 5: Transit ROW/Railway Crossing & Northfield Dr W





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑							
Traffic Volume (vph)	0	1674	0	0	2252	0	0	0	0	0	0	0
Future Volume (vph)	0	1674	0	0	2252	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1900	1750	1775	1900	1750
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.91			0.95							
Frpb, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		4906			3570							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		4906			3570							
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1674	0	0	2252	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1674	0	0	2252	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	9		79	79		9	32		32	32		32
Heavy Vehicles (%)	0%	4%	0%	100%	0%	0%	0%	0%	100%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	0	0	0	0	0	0	0	0
Parking (#/hr)							0					
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		51.3			86.0							
Effective Green, g (s)		55.3			90.0							
Actuated g/C Ratio		0.48			0.78							
Clearance Time (s)		8.0			8.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		2359			2793							
v/s Ratio Prot		0.34			c0.63							
v/s Ratio Perm												
v/c Ratio		0.70			0.80							
Uniform Delay, d1		23.5			7.3							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.8			2.6							
Delay (s)		25.3			9.9							
Level of Service		C			A							
Approach Delay (s/veh)		25.3			9.9			0.0			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

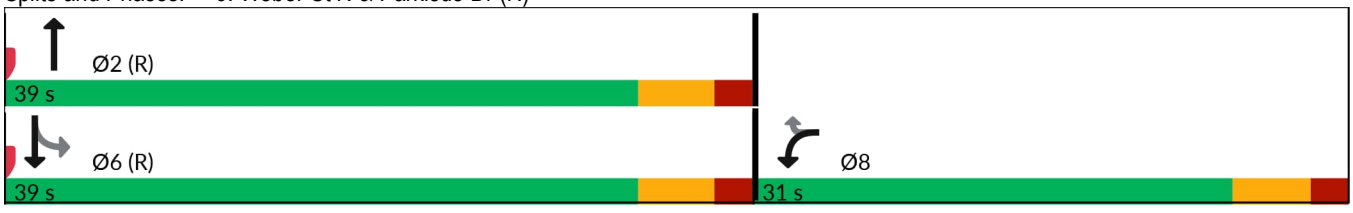
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	142	219	412	114	692
Future Volume (vph)	142	219	412	114	692
Lane Group Flow (vph)	142	219	635	114	692
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	30.0	30.0	30.0
Minimum Split (s)	31.0	31.0	36.0	36.0	36.0
Total Split (s)	31.0	31.0	39.0	39.0	39.0
Total Split (%)	44.3%	44.3%	55.7%	55.7%	55.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	6.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.44	0.49	0.29	0.24	0.31
Control Delay (s/veh)	28.8	7.8	3.3	7.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.8	7.8	3.3	7.2	5.0
Queue Length 50th (m)	17.6	0.0	8.7	5.2	15.6
Queue Length 95th (m)	31.0	15.5	18.3	15.2	29.0
Internal Link Dist (m)	67.8		212.4		232.9
Turn Bay Length (m)				33.0	
Base Capacity (vph)	643	664	2181	460	2204
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.33	0.29	0.25	0.31

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 6: Weber St N & Parkisde Dr (N)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	219	412	223	114	692
Future Volume (vph)	142	219	412	223	114	692
Ideal Flow (vphpl)	1775	1750	1775	1775	1775	1775
Total Lost time (s)	4.0	4.0	4.0		6.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1668	1375	3052		1631	3176
Flt Permitted	0.95	1.00	1.00		0.40	1.00
Satd. Flow (perm)	1668	1375	3052		692	3176
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	219	412	223	114	692
RTOR Reduction (vph)	0	177	63	0	0	0
Lane Group Flow (vph)	142	42	572	0	114	692
Confl. Peds. (#/hr)				3	3	
Heavy Vehicles (%)	0%	7%	4%	0%	2%	5%
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	11.4	11.4	46.6		46.6	46.6
Effective Green, g (s)	13.4	13.4	48.6		46.6	48.6
Actuated g/C Ratio	0.19	0.19	0.69		0.67	0.69
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	319	263	2118		460	2205
v/s Ratio Prot	c0.09		0.19			c0.22
v/s Ratio Perm		0.03			0.16	
v/c Ratio	0.44	0.15	0.26		0.24	0.31
Uniform Delay, d1	25.0	23.6	4.0		4.6	4.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.2	0.3		1.2	0.3
Delay (s)	26.0	23.8	4.3		5.9	4.5
Level of Service	C	C	A		A	A
Approach Delay (s/veh)	24.7		4.3			4.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	211	29	0	252	43	14	6	0	20	9	95
Future Vol, veh/h	97	211	29	0	252	43	14	6	0	20	9	95
Conflicting Peds, #/hr	14	0	0	0	0	14	15	0	1	1	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	13	0	0	16	0	0	0	0	0	0	0
Mvmt Flow	97	211	29	0	252	43	14	6	0	20	9	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	240	0	0	566	729	227	712	722	177
Stage 1	-	-	-	-	-	-	420	420	-	288	288	-
Stage 2	-	-	-	-	-	-	146	309	-	424	434	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.3	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1263	-	-	1339	-	-	424	352	817	336	355	842
Stage 1	-	-	-	-	-	-	615	593	-	701	677	-
Stage 2	-	-	-	-	-	-	848	663	-	612	585	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1249	-	-	1339	-	-	338	317	816	305	320	823
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	317	-	305	320	-
Stage 1	-	-	-	-	-	-	560	540	-	631	670	-
Stage 2	-	-	-	-	-	-	731	656	-	550	532	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	2.3	0	16.6	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	331	1249	-	-	1339	-	-	305	724
HCM Lane V/C Ratio	0.06	0.078	-	-	-	-	-	0.066	0.144
HCM Control Delay (s/veh)	16.6	8.1	0	-	0	-	-	17.6	10.8
HCM Lane LOS	C	A	A	-	A	-	-	C	B
HCM 95th %tile Q (veh)	0.2	0.3	-	-	0	-	-	0.2	0.5

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	112	116	30	279	34	0	0	50	21	7	16
Future Vol, veh/h	3	112	116	30	279	34	0	0	50	21	7	16
Conflicting Peds, #/hr	0	0	2	4	0	0	0	0	5	5	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	4	0	0	0	146	0	0	0
Mvmt Flow	3	112	116	30	279	34	0	0	50	21	7	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	313	0	0	232	0	0	548	553	179	562	594	296
Stage 1	-	-	-	-	-	-	180	180	-	356	356	-
Stage 2	-	-	-	-	-	-	368	373	-	206	238	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	7.66	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	4.614	3.5	4	3.3
Pot Cap-1 Maneuver	1259	-	-	1348	-	-	450	444	597	441	421	748
Stage 1	-	-	-	-	-	-	826	754	-	666	633	-
Stage 2	-	-	-	-	-	-	656	622	-	801	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1259	-	-	1344	-	-	423	429	593	393	407	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	423	429	-	393	407	-
Stage 1	-	-	-	-	-	-	821	749	-	664	616	-
Stage 2	-	-	-	-	-	-	618	605	-	728	708	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.1	0.7	11.6	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	593	1259	-	-	1344	-	-	478
HCM Lane V/C Ratio	0.084	0.002	-	-	0.022	-	-	0.092
HCM Control Delay (s/veh)	11.6	7.9	0	-	7.7	0	-	13.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q (veh)	0.3	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	1182	1450	209	22	85
Future Vol, veh/h	23	1182	1450	209	22	85
Conflicting Peds, #/hr	13	0	0	13	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	5	0	12	0
Mvmt Flow	23	1182	1450	209	22	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1672	0	-	0	2208	843
Stage 1	-	-	-	-	1568	-
Stage 2	-	-	-	-	640	-
Critical Hdwy	4.1	-	-	-	7.04	6.9
Critical Hdwy Stg 1	-	-	-	-	6.04	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.2	-	-	-	3.62	3.3
Pot Cap-1 Maneuver	389	-	-	-	33	311
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	385	-	-	-	27	308
Mov Cap-2 Maneuver	-	-	-	-	27	-
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	456	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.6	0	82.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	385	-	-	-	27	308
HCM Lane V/C Ratio	0.06	-	-	-	0.815	0.276
HCM Control Delay (s/veh)	14.9	1.3	-	-	$ 321.7	21.1
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.6	1.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1668	11	0	2210	124	0	0	43	0	0	45
Future Vol, veh/h	0	1668	11	0	2210	124	0	0	43	0	0	45
Conflicting Peds, #/hr	4	0	2	2	0	4	36	0	0	0	0	36
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	6	0	0	3	5	0	0	0	0	0	9
Mvmt Flow	0	1668	11	0	2210	124	0	0	43	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	842	-	-	1207
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	-	-	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	-	-	3.39
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	267	0	0	166
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	267	-	-	161
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	21.1	35.8
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	267	-	-	-	-	161
HCM Lane V/C Ratio	0.161	-	-	-	-	0.28
HCM Control Delay (s/veh)	21.1	-	-	-	-	35.8
HCM Lane LOS	C	-	-	-	-	E
HCM 95th %tile Q (veh)	0.6	-	-	-	-	1.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	50	146	7
Future Vol, veh/h	0	0	0	50	146	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	50	146	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	200	150	153	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	793	902	1440	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	793	902	1440	-	-	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	978	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1440	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	0	30	0	146	0
Future Vol, veh/h	50	0	30	0	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	50	0	30	0	146	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	206	146	146	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	787	906	1448	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	906	1448	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10	7.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1448	-	770	-	-
HCM Lane V/C Ratio	0.021	-	0.065	-	-
HCM Control Delay (s/veh)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	37	30	146	0
Future Vol, veh/h	0	37	37	30	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	37	37	30	146	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	250	146	146	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	743	906	1448	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	724	906	1448	-	-	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.1	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1448	-	906	-	-
HCM Lane V/C Ratio	0.026	-	0.041	-	-
HCM Control Delay (s/veh)	7.6	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	27	0	0	11	67	154	116	67	0
Future Vol, veh/h	0	0	11	27	0	0	11	67	154	116	67	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	11	27	0	0	11	67	154	116	67	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	465	542	67	471	465	144	67	0	0	221	0	0
Stage 1	299	299	-	166	166	-	-	-	-	-	-	-
Stage 2	166	243	-	305	299	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	511	450	1002	506	498	909	1547	-	-	1360	-	-
Stage 1	714	670	-	841	765	-	-	-	-	-	-	-
Stage 2	841	708	-	709	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	473	407	1002	463	450	909	1547	-	-	1360	-	-
Mov Cap-2 Maneuver	473	407	-	463	450	-	-	-	-	-	-	-
Stage 1	708	610	-	834	759	-	-	-	-	-	-	-
Stage 2	834	702	-	639	610	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.6	13.3	0.3	5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1547	-	-	1002	463	1360	-	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.058	0.085	-	-
HCM Control Delay (s/veh)	7.3	0	-	8.6	13.3	7.9	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	126	10	2	0	336	3	3	0	4	0
Future Vol, veh/h	0	2	126	10	2	0	336	3	3	0	4	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	4	0	0	0	4	0	0	0	0	0
Mvmt Flow	0	2	126	10	2	0	336	3	3	0	4	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.1	10.7	7.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	98%	0%	83%	0%
Vol Thru, %	1%	2%	17%	100%
Vol Right, %	1%	98%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	342	128	12	4
LT Vol	336	0	10	0
Through Vol	3	2	2	4
RT Vol	3	126	0	0
Lane Flow Rate	342	128	12	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.419	0.148	0.017	0.005
Departure Headway (Hd)	4.407	4.151	5.039	4.58
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	807	869	713	782
Service Time	2.486	2.152	3.049	2.602
HCM Lane V/C Ratio	0.424	0.147	0.017	0.005
HCM Control Delay, s/veh	10.7	7.9	8.1	7.6
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.1	0.5	0.1	0

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	25	37	0	3	26	339	34	3	137	0
Future Vol, veh/h	0	0	25	37	0	3	26	339	34	3	137	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	6	0
Mvmt Flow	0	0	25	37	0	3	26	339	34	3	137	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	553	568	137	564	551	356	137	0	0	373	0	0
Stage 1	143	143	-	408	408	-	-	-	-	-	-	-
Stage 2	410	425	-	156	143	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	447	435	917	439	445	693	1459	-	-	1197	-	-
Stage 1	865	782	-	624	600	-	-	-	-	-	-	-
Stage 2	623	590	-	851	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	436	424	917	418	433	693	1459	-	-	1197	-	-
Mov Cap-2 Maneuver	436	424	-	418	433	-	-	-	-	-	-	-
Stage 1	845	780	-	610	586	-	-	-	-	-	-	-
Stage 2	606	576	-	825	780	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9	14.2	0.5	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	917	431	1197	-	-
HCM Lane V/C Ratio	0.018	-	-	0.027	0.093	0.003	-	-
HCM Control Delay (s/veh)	7.5	0	-	9	14.2	8	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q (veh)	0.1	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	181	0	0	231	0	168	382	0	199	0
Future Vol, veh/h	0	0	181	0	0	231	0	168	382	0	199	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-2	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	4	0
Mvmt Flow	0	0	181	0	0	231	0	168	382	0	199	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	674	749	199	649	558	359	199	0	0	550	0	0
Stage 1	199	199	-	359	359	-	-	-	-	-	-	-
Stage 2	475	550	-	290	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	371	343	847	386	441	690	1385	-	-	1030	-	-
Stage 1	807	740	-	663	631	-	-	-	-	-	-	-
Stage 2	574	519	-	722	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	247	343	847	303	441	690	1385	-	-	1030	-	-
Mov Cap-2 Maneuver	247	343	-	303	441	-	-	-	-	-	-	-
Stage 1	807	740	-	663	631	-	-	-	-	-	-	-
Stage 2	382	519	-	568	740	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.4	12.8	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	847	690	1030	-	-
HCM Lane V/C Ratio	-	-	-	0.214	0.335	-	-	-
HCM Control Delay (s/veh)	0	-	-	10.4	12.8	0	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0.8	1.5	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	124	9	0	337	1	5	0	0	4	0	1
Future Vol, veh/h	0	124	9	0	337	1	5	0	0	4	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	0	124	9	0	337	1	5	0	0	4	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	338	0	0	133	0	0	467	467	129	467	471	338
Stage 1	-	-	-	-	-	-	129	129	-	338	338	-
Stage 2	-	-	-	-	-	-	338	338	-	129	133	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1232	-	-	1464	-	-	509	496	926	509	494	709
Stage 1	-	-	-	-	-	-	880	793	-	681	644	-
Stage 2	-	-	-	-	-	-	681	644	-	880	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1464	-	-	508	496	926	509	494	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	508	496	-	509	494	-
Stage 1	-	-	-	-	-	-	880	793	-	681	644	-
Stage 2	-	-	-	-	-	-	680	644	-	880	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	12.2	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	508	1232	-	-	1464	-	-	539
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.009
HCM Control Delay (s/veh)	12.2	0	-	-	0	-	-	11.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Future Vol, veh/h	0	0	1	3	0	0	1	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	3	0	0	1	0	2	0	0	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	4	5	1	5	4	1	1	0	0	2	0	0
Stage 1	1	1	-	3	3	-	-	-	-	-	-	-
Stage 2	3	4	-	2	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1022	894	1090	1021	896	1090	1635	-	-	1634	-	-
Stage 1	1027	899	-	1025	897	-	-	-	-	-	-	-
Stage 2	1025	897	-	1026	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1021	893	1090	1019	895	1090	1635	-	-	1634	-	-
Mov Cap-2 Maneuver	1021	893	-	1019	895	-	-	-	-	-	-	-
Stage 1	1026	899	-	1024	896	-	-	-	-	-	-	-
Stage 2	1024	896	-	1025	899	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.3	8.5	2.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1635	-	-	1090	1019	1634	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.003	-	-	-
HCM Control Delay (s/veh)	7.2	0	-	8.3	8.5	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	-	0	0	0	-	-

Intersection	
Intersection Delay, s/veh	6.5
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	2	0	0	10
Future Vol, veh/h	3	2	2	0	0	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	2	2	0	0	10
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	6.8	7.1	6.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	100%	60%	0%
Vol Thru, %	0%	0%	0%
Vol Right, %	0%	40%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	2	5	10
LT Vol	2	3	0
Through Vol	0	0	0
RT Vol	0	2	10
Lane Flow Rate	2	5	10
Geometry Grp	1	1	1
Degree of Util (X)	0.002	0.005	0.009
Departure Headway (Hd)	4.115	3.801	3.31
Convergence, Y/N	Yes	Yes	Yes
Cap	874	947	1087
Service Time	2.117	1.801	1.311
HCM Lane V/C Ratio	0.002	0.005	0.009
HCM Control Delay, s/veh	7.1	6.8	6.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0	0

APPENDIX H

Traffic Operations Review

M.T.O. MINIMUM REQUIREMENTS
FOR INSTALLATION OF TRAFFIC SIGNAL

Methodology from Section 4 of *Ontario Traffic Manual Book 12: Traffic Signals*

INTERSECTION: Parkside Dr/Prkside Dr Ext & Future E-W Road

HORIZON / DESCRIPTION: Future Total (2031 and 2041)

Number of lanes on main road: 1
Flow conditions: Restricted (speeds less than 70 km/h with frequent side friction)
Number of approach legs: 4
Number of existing roads: 2 (all approach legs exist)
Major direction: North-South

Result
Condition not met
Condition not met
Condition not met

Justification 1: if both Justification 1A and 1B are 100% fulfilled.
Justification 2: if both Justification 2A and 2B are 100% fulfilled.
Justification 3: if all of Justifications 1A, 1B, 2A, and 2B are at least 80% fulfilled (only if both roads exist).

All justifications modified by Justification 7 to use peak hour projected volumes.

Justification 1: Minimum Vehicle Volume

A. Base volume requirement: 720
Requirement after 120% expansion: 864

Value	Percent Met
269	31%

B. Base volume requirement (minor street): 170
Requirement after 120% expansion: 204

Value	Percent Met
49.75	24%

Justification 2: Delay to Cross Traffic

A. Base volume requirement (major street): 720
Requirement after 120% expansion: 864

Value	Percent Met
219.25	25%

B. Base volume requirement (crossing major): 75
Requirement after 120% expansion: 90

Value	Percent Met
3.5	4%

	Volumes		Sum	Average Hourly
	AM	PM		
NBL	513	336	849	212.25
NBT	3	3	6	1.5
NBR	11	3	14	3.5
SBL	0	0	0	0
SBT	4	4	8	2
SBR	0	0	0	0
EBL	0	0	0	0
EBT	0	2	2	0.5
EBR	57	126	183	45.75
WBL	2	10	12	3
WBT	0	2	2	0.5
WBR	0	0	0	0
Peds	0	0	0	0

Pedestrians crossing major road

Roundabout Analysis

2031

Junctions 8

ARCADY 8 Lite

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: FT2031.arc8
Path: F:\24063\Traffic\Roundabout
Report generation date: 2024-01-26 3:21:44 PM

Summary of intersection performance

	Weekday AM Peak Hour								Weekday PM Peak Hour							
	Q (PCE)	Q95 (PCE)	Delay (s)	V/C	LOS	Int Del (s)	Int LOS	Res Cap	Q (PCE)	Q95 (PCE)	Delay (s)	V/C	LOS	Int Del (s)	Int LOS	Res Cap
	Future Total 2031 Network - Future Total 2031															
Leg 1	0.00	~1	3.96	0.00	A	5.41	A	98 % [Leg 4]	0.01	~1	3.52	0.01	A	4.52	A	174 % [Leg 3]
Leg 2	0.01	400.00	7.66	0.00	A				0.01	400.00	7.03	0.00	A			
Leg 3	0.21	~1	3.74	0.17	A				0.50	~1	4.54	0.33	A			
Leg 4	0.88	~1	6.04	0.45	A				0.43	~1	4.51	0.28	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Int LOS and Int Del are demand-weighted averages. Res Cap indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - Future Total 2031, Weekday AM Peak Hour " model duration: 7:45 AM - 8:45 AM
"D2 - Future Total 2031, Weekday PM Peak Hour" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2024-01-26 3:21:41 PM

File summary

Title	24063 170 Northfield Dr W Roundabout Analysis
Date	2024-01-11
Version	
Status	(new file)
Client	
Analyst	AKung
Description	24063 170 Northfield Dr W Roundabout Analysis - Future Total

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Threshold	Ave Delay Threshold (s)	Q Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Ave Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Total 2031 Network - Future Total 2031, Weekday AM Peak Hour

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total 2031 Network	ARCADY	Project 24063 170 Northfield Dr W Roundabout Analysis	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
Future Total 2031	Weekday AM Peak Hour	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck %
1	1	Future E-W Road (WB)	0.0
2	2	Parkside Dr Ext (SB)	100.0
3	3	Future E-W Road (EB)	4.0
4	4	Parkside Dr (NB)	9.0

Capacity Options

Leg	Min Cap (PCE/hr)	Max Cap (PCE/hr)	Intercept Adj (%)	Intercept Adj2 (%)	Final Slope	Final Intercept (PCE/hr)
1	0.00	99999.00	100.00	100.00	0.509	1205.516
2	0.00	99999.00	100.00	100.00	0.509	1205.516
3	0.00	99999.00	100.00	100.00	0.509	1205.516
4	0.00	99999.00	100.00	100.00	0.509	1205.516

Roundabout Geometry

Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit Only
1	3.50	6.00	3.50	15.50	46.00	45.00	
2	3.50	6.00	3.50	15.50	46.00	45.00	
3	3.50	6.00	3.50	15.50	46.00	45.00	
4	3.50	6.00	3.50	15.50	46.00	45.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				

		1	2	3	4
From	1	0.000	2.000	0.000	2.000
	2	0.000	0.000	0.000	4.000
	3	0.000	57.000	0.000	144.000
	4	11.000	3.000	513.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
4.00	1.00	SecondQuarter
4.00	1.00	SecondQuarter
201.00	1.00	SecondQuarter
527.00	1.00	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C	Max Delay (s)	Max Q (PCE)	Max Q95 (PCE)	Max LOS
1	0.00	3.96	0.00	~1	A
2	0.00	7.66	0.01	400.00	A
3	0.17	3.74	0.21	~1	A
4	0.45	6.04	0.88	~1	A

Roundabout performance

Driving Side	Name	Int Del (s)	Int LOS	Res Cap (%)	First Leg Reaching Threshold
Right	Parkside Dr / Parkside Dr Ext & Future E-W Road	5.41	A	98	Leg 4

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	4.00	3.98	569.34	0.00	915.80	0.004	0.00	3.947	A
2	4.00	3.97	511.59	0.00	945.19	0.004	0.01	7.648	A
3	201.00	200.17	5.96	0.00	1202.48	0.167	0.21	3.731	A
4	527.00	523.51	56.76	0.00	1176.63	0.448	0.87	5.978	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	4.00	4.00	572.98	0.00	913.95	0.004	0.00	3.955	A
2	4.00	4.00	514.98	0.00	943.46	0.004	0.01	7.662	A
3	201.00	201.00	6.00	0.00	1202.46	0.167	0.21	3.737	A
4	527.00	526.98	57.00	0.00	1176.51	0.448	0.88	6.040	A

Main results: (08:15-08:30)

Leg	Total Demand	Entry Flow	Circulating Flow	Ped Demand	Capacity	V/C	End Q	Delay	LOS

	(PCE/hr)	(PCE/hr)	(PCE/hr)	(Ped/hr)	(PCE/hr)		(PCE)	(s)	
1	4.00	4.00	572.99	0.00	913.94	0.004	0.00	3.956	A
2	4.00	4.00	514.99	0.00	943.46	0.004	0.01	7.663	A
3	201.00	201.00	6.00	0.00	1202.46	0.167	0.21	3.737	A
4	527.00	526.99	57.00	0.00	1176.51	0.448	0.88	6.040	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	4.00	4.00	573.00	0.00	913.94	0.004	0.00	3.956	A
2	4.00	4.00	515.00	0.00	943.45	0.004	0.01	7.663	A
3	201.00	201.00	6.00	0.00	1202.46	0.167	0.21	3.737	A
4	527.00	527.00	57.00	0.00	1176.51	0.448	0.88	6.040	A

Future Total 2031 Network - Future Total 2031, Weekday PM Peak Hour

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total 2031 Network	ARCADY	Project 24063 170 Northfield Dr W Roundabout Analysis	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
Future Total 2031	Weekday PM Peak Hour	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck %
1	1	Future E-W Road (WB)	0.0
2	2	Parkside Dr Ext (SB)	100.0
3	3	Future E-W Road (EB)	1.0
4	4	Parkside Dr (NB)	8.0

Capacity Options

Leg	Min Cap (PCE/hr)	Max Cap (PCE/hr)	Intercept Adj (%)	Intercept Adj2 (%)	Final Slope	Final Intercept (PCE/hr)
1	0.00	99999.00	100.00	100.00	0.509	1205.516
2	0.00	99999.00	100.00	100.00	0.509	1205.516
3	0.00	99999.00	100.00	100.00	0.509	1205.516
4	0.00	99999.00	100.00	100.00	0.509	1205.516

Roundabout Geometry

Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit Only
1	3.50	6.00	3.50	15.50	46.00	45.00	
2	3.50	6.00	3.50	15.50	46.00	45.00	
3	3.50	6.00	3.50	15.50	46.00	45.00	
4	3.50	6.00	3.50	15.50	46.00	45.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	2.000	10.000
	2	0.000	0.000	0.000	4.000
	3	2.000	0.000	0.000	396.000
	4	3.000	3.000	336.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
12.00	1.00	SecondQuarter
4.00	1.00	SecondQuarter
398.00	1.00	SecondQuarter
342.00	1.00	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C	Max Delay (s)	Max Q (PCE)	Max Q95 (PCE)	Max LOS
1	0.01	3.52	0.01	~1	A
2	0.00	7.03	0.01	400.00	A
3	0.33	4.54	0.50	~1	A
4	0.28	4.51	0.43	~1	A

Roundabout performance

Driving Side	Name	Int Del (s)	Int LOS	Res Cap (%)	First Leg Reaching Threshold
Right	Parkside Dr / Parkside Dr Ext & Future E-W Road	4.52	A	174	Leg 3

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	12.00	11.95	337.31	0.00	1033.87	0.012	0.01	3.522	A
2	4.00	3.97	346.28	0.00	1029.31	0.004	0.01	7.021	A
3	398.00	396.01	13.93	0.00	1198.43	0.332	0.50	4.520	A
4	342.00	340.30	1.99	0.00	1204.50	0.284	0.43	4.492	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	12.00	12.00	338.99	0.00	1033.02	0.012	0.01	3.525	A
2	4.00	4.00	347.99	0.00	1028.44	0.004	0.01	7.027	A
3	398.00	397.99	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	341.99	2.00	0.00	1204.50	0.284	0.43	4.507	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	12.00	12.00	339.00	0.00	1033.01	0.012	0.01	3.525	A
2	4.00	4.00	348.00	0.00	1028.43	0.004	0.01	7.027	A
3	398.00	398.00	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	342.00	2.00	0.00	1204.50	0.284	0.43	4.507	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	12.00	12.00	339.00	0.00	1033.01	0.012	0.01	3.525	A
2	4.00	4.00	348.00	0.00	1028.43	0.004	0.01	7.027	A
3	398.00	398.00	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	342.00	2.00	0.00	1204.50	0.284	0.43	4.507	A

2041

Junctions 8

ARCADY 8 Lite

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: FT2041.arc8
Path: F:\24063\Traffic\Roundabout
Report generation date: 2024-01-26 3:17:18 PM

Summary of intersection performance

	Weekday AM Peak Hour								Weekday PM Peak Hour							
	Q (PCE)	Q95 (PCE)	Delay (s)	V/C	LOS	Int Del (s)	Int LOS	Res Cap	Q (PCE)	Q95 (PCE)	Delay (s)	V/C	LOS	Int Del (s)	Int LOS	Res Cap
	Future Total 2041 Network - Future Total 2041															
Leg 1	0.00	~1	0.00	0.00	A	5.31	A	109 % [Leg 4]	0.02	~1	3.56	0.02	A	4.51	A	174 % [Leg 3]
Leg 2	0.01	400.00	7.65	0.00	A				0.01	400.00	7.03	0.00	A			
Leg 3	0.14	~1	3.53	0.12	A				0.50	~1	4.54	0.33	A			
Leg 4	0.84	~1	5.78	0.44	A				0.43	~1	4.51	0.28	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Int LOS and Int Del are demand-weighted averages. Res Cap indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - Future Total 2041, Weekday AM Peak Hour " model duration: 7:45 AM - 8:45 AM
"D2 - Future Total 2041, Weekday PM Peak Hour" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2024-01-26 3:17:15 PM

File summary

Title	24063 170 Northfield Dr W Roundabout Analysis
Date	2024-01-11
Version	
Status	(new file)
Client	
Analyst	AKung
Description	24063 170 Northfield Dr W Roundabout Analysis - Future Total

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Threshold	Ave Delay Threshold (s)	Q Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Ave Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Total 2041 Network - Future Total 2041, Weekday AM Peak Hour

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total 2041 Network	ARCADY	Project 24063 170 Northfield Dr W Roundabout Analysis	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
Future Total 2041	Weekday AM Peak Hour	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck %
1	1	Future E-W Road (WB)	0.0
2	2	Parkside Dr Ext (SB)	100.0
3	3	Future E-W Road (EB)	4.0
4	4	Parkside Dr (NB)	9.0

Capacity Options

Leg	Min Cap (PCE/hr)	Max Cap (PCE/hr)	Intercept Adj (%)	Intercept Adj2 (%)	Final Slope	Final Intercept (PCE/hr)
1	0.00	99999.00	100.00	100.00	0.509	1205.516
2	0.00	99999.00	100.00	100.00	0.509	1205.516
3	0.00	99999.00	100.00	100.00	0.509	1205.516
4	0.00	99999.00	100.00	100.00	0.509	1205.516

Roundabout Geometry

Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit Only
1	3.50	6.00	3.50	15.50	46.00	45.00	
2	3.50	6.00	3.50	15.50	46.00	45.00	
3	3.50	6.00	3.50	15.50	46.00	45.00	
4	3.50	6.00	3.50	15.50	46.00	45.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	2.000
	2	0.000	0.000	0.000	4.000
	3	0.000	0.000	0.000	144.000
	4	11.000	3.000	513.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
2.00	1.00	SecondQuarter
4.00	1.00	SecondQuarter
144.00	1.00	SecondQuarter

527.00	1.00	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C	Max Delay (s)	Max Q (PCE)	Max Q95 (PCE)	Max LOS
1	0.00	0.00	0.00	~1	A
2	0.00	7.65	0.01	400.00	A
3	0.12	3.53	0.14	~1	A
4	0.44	5.78	0.84	~1	A

Roundabout performance

Driving Side	Name	Int Del (s)	Int LOS	Res Cap (%)	First Leg Reaching Threshold
Right	Parkside Dr / Parkside Dr Ext & Future E-W Road	5.31	A	109	Leg 4

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	0.00	0.00	512.72	0.00	944.61	0.000	0.00	0.000	A
2	4.00	3.97	509.74	0.00	946.13	0.004	0.01	7.641	A
3	144.00	143.44	3.97	0.00	1203.50	0.120	0.14	3.530	A
4	527.00	523.65	0.00	0.00	1205.52	0.437	0.84	5.728	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	0.00	0.00	515.98	0.00	942.95	0.000	0.00	0.000	A
2	4.00	4.00	512.98	0.00	944.48	0.004	0.01	7.654	A
3	144.00	144.00	4.00	0.00	1203.48	0.120	0.14	3.532	A
4	527.00	526.98	0.00	0.00	1205.52	0.437	0.84	5.782	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	0.00	0.00	515.99	0.00	942.95	0.000	0.00	0.000	A
2	4.00	4.00	512.99	0.00	944.47	0.004	0.01	7.654	A
3	144.00	144.00	4.00	0.00	1203.48	0.120	0.14	3.532	A
4	527.00	526.99	0.00	0.00	1205.52	0.437	0.84	5.782	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	0.00	0.00	516.00	0.00	942.95	0.000	0.00	0.000	A
2	4.00	4.00	513.00	0.00	944.47	0.004	0.01	7.654	A
3	144.00	144.00	4.00	0.00	1203.48	0.120	0.14	3.532	A
4	527.00	527.00	0.00	0.00	1205.52	0.437	0.84	5.782	A

Future Total 2041 Network - Future Total 2041, Weekday PM Peak Hour

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total 2041 Network	ARCADY	Project 24063 170 Northfield Dr W Roundabout Analysis	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
Future Total 2041	Weekday PM Peak Hour	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck %
1	1	Future E-W Road (WB)	0.0
2	2	Parkside Dr Ext (SB)	100.0
3	3	Future E-W Road (EB)	1.0
4	4	Parkside Dr (NB)	8.0

Capacity Options

Leg	Min Cap (PCE/hr)	Max Cap (PCE/hr)	Intercept Adj (%)	Intercept Adj2 (%)	Final Slope	Final Intercept (PCE/hr)
1	0.00	99999.00	100.00	100.00	0.509	1205.516
2	0.00	99999.00	100.00	100.00	0.509	1205.516
3	0.00	99999.00	100.00	100.00	0.509	1205.516
4	0.00	99999.00	100.00	100.00	0.509	1205.516

Roundabout Geometry

Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit Only
1	3.50	6.00	3.50	15.50	46.00	45.00	
2	3.50	6.00	3.50	15.50	46.00	45.00	
3	3.50	6.00	3.50	15.50	46.00	45.00	
4	3.50	6.00	3.50	15.50	46.00	45.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	10.000	2.000	10.000
	2	0.000	0.000	0.000	4.000
	3	2.000	0.000	0.000	396.000

	4	3.000	3.000	336.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
22.00	1.00	SecondQuarter
4.00	1.00	SecondQuarter
398.00	1.00	SecondQuarter
342.00	1.00	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C	Max Delay (s)	Max Q (PCE)	Max Q95 (PCE)	Max LOS
1	0.02	3.56	0.02	~1	A
2	0.00	7.03	0.01	400.00	A
3	0.33	4.54	0.50	~1	A
4	0.28	4.51	0.43	~1	A

Roundabout performance

Driving Side	Name	Int Del (s)	Int LOS	Res Cap (%)	First Leg Reaching Threshold
Right	Parkside Dr / Parkside Dr Ext & Future E-W Road	4.51	A	174	Leg 3

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	22.00	21.91	337.31	0.00	1033.87	0.021	0.02	3.556	A
2	4.00	3.97	346.28	0.00	1029.31	0.004	0.01	7.021	A
3	398.00	396.01	13.93	0.00	1198.43	0.332	0.50	4.520	A
4	342.00	340.30	1.99	0.00	1204.50	0.284	0.43	4.492	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	22.00	22.00	338.99	0.00	1033.02	0.021	0.02	3.559	A
2	4.00	4.00	347.99	0.00	1028.44	0.004	0.01	7.027	A
3	398.00	397.99	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	341.99	2.00	0.00	1204.50	0.284	0.43	4.507	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	22.00	22.00	339.00	0.00	1033.01	0.021	0.02	3.559	A
2	4.00	4.00	348.00	0.00	1028.43	0.004	0.01	7.027	A
3	398.00	398.00	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	342.00	2.00	0.00	1204.50	0.284	0.43	4.507	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Ped Demand (Ped/hr)	Capacity (PCE/hr)	V/C	End Q (PCE)	Delay (s)	LOS
1	22.00	22.00	339.00	0.00	1033.01	0.021	0.02	3.559	A
2	4.00	4.00	348.00	0.00	1028.43	0.004	0.01	7.027	A
3	398.00	398.00	14.00	0.00	1198.39	0.332	0.50	4.542	A
4	342.00	342.00	2.00	0.00	1204.50	0.284	0.43	4.507	A

APPENDIX I

Transportation Demand Management Checklist

Region of Waterloo

Travel Demand Management (TDM) Implementation Checklist

Version 9/18/2013

Appendix H

Case Study: _____ **Site Context:** _____

TDM Checklist No: _____ **ZBL Parking Requirement:** _____

Date: _____ **Applicable Parking Reduction:** _____

The Transportation Demand Management (TDM) Checklist and Parking Management Worksheet are not designed for residential properties, but can be used to inform mixed-use developments.

TABLE A		Site Access					
In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities and features should encourage walking and cycling.							
Points		**Features**				**Yes**	**N/A**
A1	**2**	Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park or plaza.				**Yes**	
A2	**1**	External to site: Continuous sidewalks (consistent with AODA Accessible Built Environment Standard) are provided along both sides of all adjacent public streets (over and above requirement) AND Internal to site: Pedestrian walkways (consistent with AODA Accessible Built Environment Standard e.g.1.8m min width) are provided through large parking areas to link the building with the public street sidewalk system				**Yes**	
A3	**3**	Non-residential: development provides secure bike storage for 5% of the building occupants. Consistent with LEED requirements.					
A4	**4**	Shower and change facilities for employees provided on-site consistent with LEED requirements.					
A5	**2**	Provision of active uses at-grade along street frontages (e.g. retail).				**Yes**	
Category Max =		10	**Total Points Applicable =**	10	**Score =**	5	

TABLE B		Public Transportation Access					
The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents.							
Points		**Features**				**Yes**	**N/A**
B1	**1**	Bus shelters with seating are provided at the transit stop immediately adjacent to the development in consultation with Transportation Planning at the Region of Waterloo				**Yes**	
B2	**1**	Information regarding public transit routes, schedules and fares are provided in an accessible and visible location on site and in adjacent bus stops					
B3a	**5**	Located within 800m of a Rapid Transit Station				**Yes**	
B3b	**3**	Located within 600 m of a bus service with headways of 15 min or less or is located in a designated mixed use corridor or node. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**					
B3c	**1**	Located within 400 m of a bus service with headways of 16 min to 30 min. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**					
Category Max =		5	**Total Points Applicable =**	5	**Score =**	5	

TABLE C		Parking					
Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing parking supply to match expected demand can a have a positive influence on the selection of alternative travel modes.							
Points		**Features**				**Yes**	**N/A**
C1	**24**	Utilizes reduced parking supply consistent with the TDM Parking Management Worksheet. Contact your Area Municipal planning authority to determine whether the Worksheet is applicable to your development. **Note: Points are awarded for either C1, C2, or C3 only. Please choose whichever applies with the highest value.**					
C2	**24**	Includes allowances for shared parking in mixed-use zones. **Note: Points are awarded for C1, C2, or C3 only. Please choose whichever applies after consulting with the Area Municipal planning authority.**					
C3	**15**	Provides no more than the minimum number of parking spaces, as required by applicable Zoning By-Law. **Note: Points are awarded for either C1, C2, or C3 only. Please choose whichever applies.**					
C4	**10**	Implements paid parking on part or all of the site (e.g. parking permits, paid parking zones near main entrances)					
C5	**3**	Provides priority parking for carpooling/vanpooling participants equivalent to 5% of employee spaces					
C6	**5**	Commercial Uses: Provide car-share spaces equivalent to 2% of building occupants					
C7	**3**	Parking is not located on major street frontage or between a road right of way and the building facade.				**Yes**	
C8	**5**	25% to 50% of parking is located underground or in a structure					
C9	**10**	50% to 75% of parking is located underground or in a structure					
C10	**15**	75% of parking or more is located underground or in a structure				**yes**	
C11	**3**	Parking spaces provided off-site on a lot within 300 metres of the lot containing such use.					
Category Max =		25	**Total Points Applicable =**	25	**Score =**	18	

Case Study: 0 **Checklist No:** 0
Date: January 0, 1900 **Site Context:** 0

TABLE D		Trip Reduction Incentives		
A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel.				
Points		**Features**		**N/A**
D1	**2**	The building owner/occupant will make available a ride matching service for car/vanpooling		
D2	**2**	The building owner/occupant will make available emergency ride home options		
D3	**5**	The building owner/occupant will make available subsidized transit passes for all occupants for a period of two years		
D4	**5**	The building owner/occupant agrees to charge for parking as an unbundled cost to occupants	**Yes**	
D5	**2**	The building owner/occupant agrees to provide reduced cost parking for users of car/van pool, bicycle, moped/motorcycle spaces		
D6	**10**	The building owner/occupant has prepared a TDM plan to the satisfaction of the Region of Waterloo and the Area Municipality that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics	**Yes**	
D7	**5**	The employer has provided flexible working hours, telework or shift work arrangements.		
D8	**14**	The development agrees to join Travelwise (TMA) that provides the same services outlined under items D1, D2, D6		
D9	**5**	The building owner/occupant will make available car sharing services		
D10	**2**	The development includes mixed uses (i.e. retail, commercial or food services, daycares, or other complementary uses) on-site or located within 400 metres.	**Yes**	
Category Max =	25	**Total Points Applicable =**	25	**Score =** 17

TABLE E	Checklist Summary			
For each item, a "Yes" answer is equivalent to the points as indicated in the section. N/A sections should be explained in an attachment to this table. The score for each section is reflected as a percentage and calculated by dividing the points by the "Total Applicable".				
Category	**Minimum Requirement**	**Total Applicable**	**Points Scored**	**Comments**
Pedestrian & Cyclist Orientation	24	10	5	
Public Transit Access		5	5	
Parking		25	18	
SUB-TOTAL		**40**	**28**	
Trip Reduction Incentives		*25*	17	
OVERALL TOTAL		***65***	**45**	

TABLE F	Scoring Summary		
FINAL SCORE	**RATING (check one)**		
50 - 65	****		**TDM SUPPORTIVE DEVELOPMENT**
40 -49	***	**X**	
30 - 39	**		
24 - 29	*		
0 - 23			Non-TDM Supportive Development (Review and upgrade TDM elements to pass)

Comments:

Region of Waterloo

Parking Management Worksheet

Version 9/18/2013

Appendix I

Case Study: 170 Northfield Drive, Waterloo **Site Context:** Intensification Corridor

Date: **Reduction Worksheet No:** 1

"**Urban Growth Centres -** (UGC) area classification includes the Downtown / Uptown and RT Station Areas of Kitchener, Waterloo and Cambridge.

"**Intensification Corridor**" (IC) classification is applied to sites within 800 metres of the future CTC line

"**Other**" classification applies to all other sites

Please highlight the cell percentages applicable to your development under the appropriate classification. Please note that the Parking Management Worksheet and the Transportation Demand Management (TDM) Checklist are not designed for residential properties, but can be used for mixed-use developments. Local municipalities are the decision-making bodies with respect to consideration of parking reductions below Zoning By-law requirements.

TABLE A	Pedestrian and Cyclist Orientation			
In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities and features should encourage walking and cycling.				
	Features	**UGC**	**IC**	**Other**
A1	Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park or plaza.	1%	1%	1%
A2	Continuous sidewalks (1.5m min. width) are provided along both sides of all adjacent public streets and pedestrian walkways (1.5m min width) are provided through large parking areas to link the building with the public street sidewalk system	0%	0%	1%
A3	Non-Residential: Development provides secure bike storage for 4% of the building occupants	2%	2%	1%
A4	Shower and change facilities provided on-site consistent with LEED requirements.	1%	1%	1%
A5	Provision of active uses at-grade along street frontages.	1%	1%	1%
	Category Maximum	**4%**	**4%**	**4%**
	Available Parking Reduction		**2%**	

TABLE B	Public Transportation Access			
The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents.				
	Features	**UGC**	**IC**	**Other**
B1	Bus shelters with seating are provided at the transit stop immediately adjacent to the development, in consultation with Transportation Planning at the Region of Waterloo	0%	0%	1%
B2	Information regarding public transit routes, schedules and fares are provided in an accessible and visible location on site and in adjacent bus stops	0%	0%	1%
B3a	Located in an UGC or within 800 m of a future Rapid Transit Station	24%	12%	0%
B3b	Located within 600m a transit route with 15 minute headways (or less) or is located in a designated mixed use corridor or node. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**	-	-	3%
B3c	Located within 400 metres of a bus service with headways of 15 min to 30 min. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**	-	-	1%
	Category Maximum	**24%**	**12%**	**5%**
	Available Parking Reduction		**12%**	

TABLE C	Parking			
Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing parking supply to match expected demand can have a positive influence on the selection of alternative travel modes.				
	Features	**UGC**	**IC**	**Other**
C1	Provides priority parking for carpooling/vanpooling participants equivalent to 5% of employee spaces	0%	0%	5%
C2	Commercial Uses: Provide car-share spaces equivalent to 2% of building occupants	2%	2%	0%
C3	Implements paid parking system on all or part of the site (e.g. parking permits, paid parking zones near main entrances)	2%	2%	1%
C4	Parking is not located on major street frontage.	0%	0%	1%
C5	25% to 50% of parking is located underground or in a structure	2%	1%	0%
C6	50% to 75% of parking is located underground or in a structure	4%	2%	0%
C7	75% of parking or more is located underground or in a structure	5%	3%	0%
	Category Maximum	**6%**	**4%**	**6%**
	Available Parking Reduction		**3%**	

Sample Parking Reduction Worksheet **FORM-2**

Case Study: 170 Northfield Drive, Waterloo **Site Context:** Intensification Corridor
Date: 1900-01-00 **Worksheet No:** 1

TABLE D	Trip Reduction Incentives			
A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel.				
	Features	**UGC**	**IC**	**Other**
D1	The building owner/occupant will provide a ride matching service for car/vanpooling	0%	0%	1%
D2	The building owner/occupant will provide emergency ride home options	3%	2%	1%
D3	The building owner/occupant will provide subsidized transit passes for all occupants for a period of two years	10%	4%	2%
D4	The building owner/occupant agrees to charge for parking as a separate cost to occupants	10%	5%	2%
D5	The building owner/occupant agrees to provide reduced cost for users of car/van pool, bicycle, moped/motorcycle spaces	0%	0%	1%
D6	The development agrees to join Travelwise (TMA) that provides the same services outlined under items D1 and D2	9%	6%	4%
	Category Maximum	**23%**	**11%**	**7%**
	Available Parking Reduction		**5%**	

TABLE E	Parking Reduction Summary				
Please indicate the total reduction available based upon Tables A through D above.					
		Maximum Achievable Reduction			
Category	**Reduction Achieved**	**UGC**	**IC**	**Other**	**Comments**
Pedestrian & Cyclist Orientation	**2%**	4%	4%	4%	
Public Transit Access	**12%**	24%	12%	5%	
Parking	**3%**	6%	4%	6%	
Trip Reduction Incentives	**5%**	23%	11%	7%	
TOTAL	**22%**	**57%**	**31%**	**22%**	

TABLE F	TOTAL REDUCTION ACHIEVED	22%

Comments:

